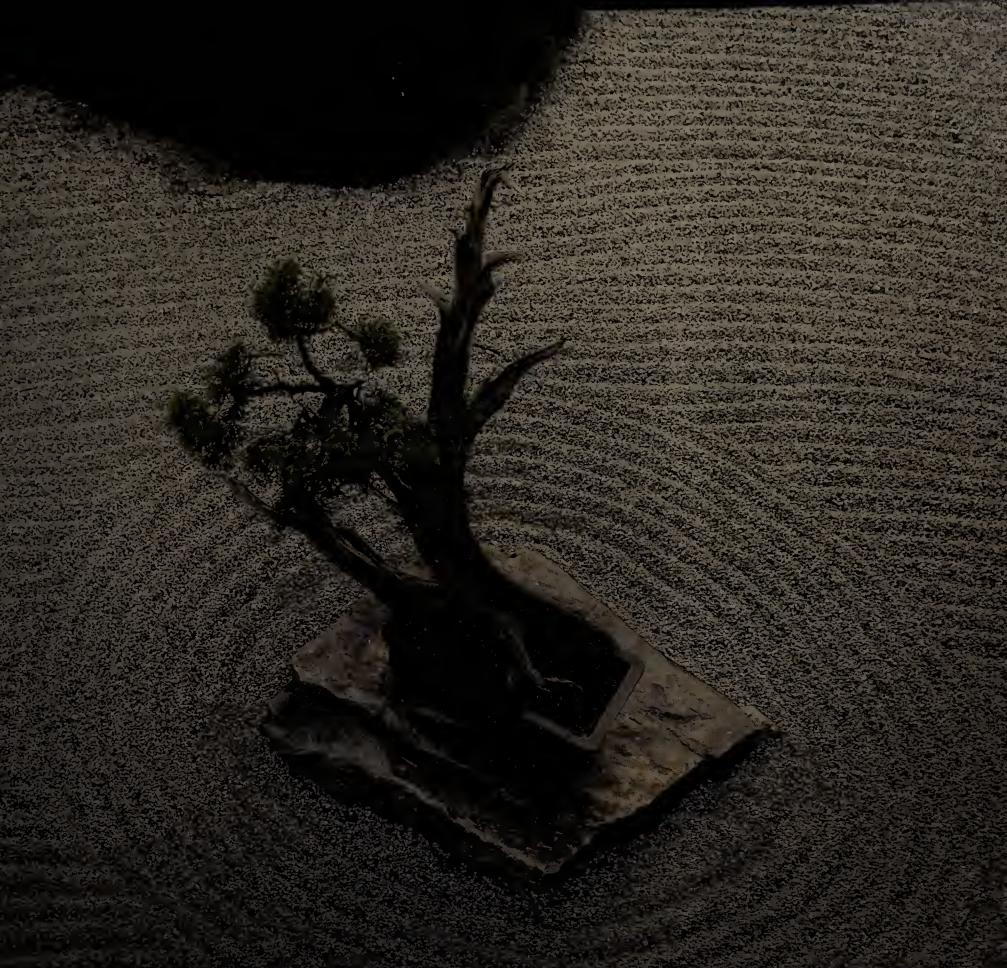


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NETWORKWORLD

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HOW the BIGGEST NETWORK COMPANIES MEASURE

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Protecting corporate data

An internal user is downloading large amounts of credit card data. Do you know why? Tizor Systems' Prat Moghe gives you the answer on this week's Network World Hot Seat. **DocFinder:3158**

The hunt for a new phone: Motorola and Samsung

In Part 3 of our coverage from CTIA, Editor Keith Shaw's quest to find a replacement for his 3-yearold cell phone takes him to the Motorola and Samsung booths at CTIA. One phone really intrigues him, but it's a bit too large.

DocFinder:3159

A Wider Net

If you've missed any of our weekly stories that go beyond the speeds and feeds of the network and IT industries — such as a look at the nation's elite science and technology high school or stories of married net pros — check out the Wider Net archive. **DocFinder:3161**

Online help and advice

Phish me once, shame on me

Alpha Doggs, our new blog reporting on the future of networking as seen through the works of university and other labs, looks at a survey that says even those wary of phishing can get tricked.

DocFinder:3163

Making sure IT professionals have the right skills

In her technology executive newsletter, Linda Mushaler finds that there is a disconnect between IT professionals and their managers when it comes to setting priorities for what will help both the employers and the employees.

DocFinder:3164

Enterprise customers make good use of wikis

Columnist Mark Gibbs finds that wikis are not just for people with encyclopedic minds. Investment bank Dresdner Kleinwort Wasserstein uses wikis to combat e-mail overload.

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Seminars and events

Application & Content Security: Building The Defensible Network: Learn how today's "fortress network" integrates VoIP and wireless into the security grid, implements automatic patch management, audits performance and identifies weaknesses. Attend the free Technology Tour event your enterprise doesn't want you to miss.

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BREAKING NEWS

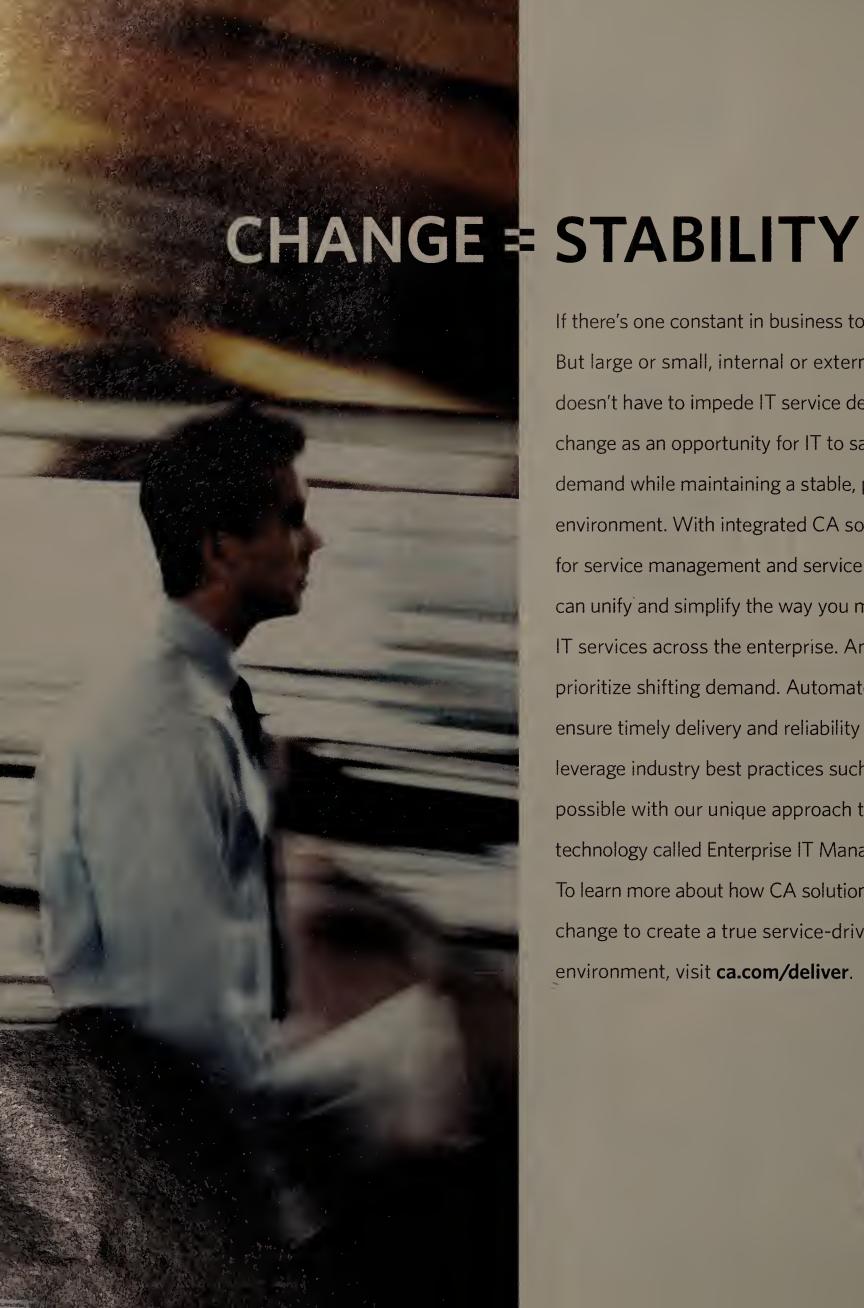
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Crunch time for Microsoft mgmt. plan

Annual summit seen as an opportunity for company to clearly define ambitious road map.

BY JOHN FONTANA

Three years into a projected 10-year effort to create a self-healing management platform for Windows, it's time for Microsoft to stop talking and start producing, analysts and partners say.

The company will get that opportunity this week at its fourth annual Microsoft Management Summit (MMS) in San Diego. But observers say Microsoft is stuck in first gear as it scrambles to get customers situated on the base management software and release products that support the most complex part of the platform, an XMLbased modeling technology called the System Definition Model (SDM).

The company's ambitious management

"This year is a put-upor-shut-up year."

Peter Pawlak, analyst, Directions on Microsoft said about the upcoming Microsoft Management Summit

plan, first introduced at MMS in 2003, is called the Dynamic Systems Initiative (DSI). It is focused on building a management platform around System Management Server (SMS), Microsoft Operations Manager (MOM), Visual Studio, Windows Server, Virtual Server, and a set of specialized tools, such as capacity planning, backup and reporting services, under the System Center brand name. Last year at MMS,

Microsoft upped the stakes by adding plans to support management of non-Windows platforms including Solaris and Linux.

"This year is a put-up-or-shut-up year," says Peter Pawlak, an analyst with Directions on Microsoft. The putting up centers on SDM, which is used to build models that dictate how systems are managed.

Last year at MMS, keynote speaker Kirill Tatarinov, corporate vice president of the Windows enterprise management division, said "knowledge expressed in models across the application life cycle is what DSI is all about." Microsoft has not produced the infrastructure software to create that environment, however.

The SDM models, which are embedded in

applications, are XML documents outlining such parameters as how the application should be configured and what security policies are associated with its operation.

The applications eventually will be able to feed that information to the SDMenabled versions of SMS, MOM and other management tools that will use those SDM parameters to monitor health, configuration and tasks associated with the applications and supporting systems.

Microsoft plans to SDM-enable all its infrastructure software, including the operating system, so the SDM management models can be used to repair, troubleshoot and report on network health.

See Microsoft, page 18

Securing UC Berkeley's network

School looks to shore up security in wake of breaches.

The University of California at Berkeley has made a name for itself in networking, with innovations such as Unix, Berkeley Internet Domain Name, Smart Dust and SETI@home. But the school has made headlines over the past few years for some things of which it is less proud, namely a couple of security breaches (a stolen laptop containing personal information on graduates and a compromised database of California residents).

Your Take

SHARE THEIR WISDOM

At the start of this year, the university published a scathing self-study of its ■ NETWORK EXECUTIVES Information Systems and Technology department. It acknowledged the school's advanced IT network and

talented professionals but recommended radical changes to the IT department's governance and structure (read the report at www.nwdocfinder.com/3144).

Clifford Frost, director of Berkeley's Communications and Network Services (CNS), recently spoke with Network World Senior Online News Editor Linda Leung about what the university is doing to ensure that when people think of the school, they think "innovation," not "infiltration."

How has IT evolved at the university?

It's been haphazard. In the case of the network, it's been pretty organized. Back in the 80s, there were campuswide committees that said networking is going to be important so let's start building it up now. The campus financial and administrative systems are pret-

Getting personal: Clifford Frost



Organization: University of California at Berkeley

Title: Director of Communication & Network Services (CNS) since the department's

Responsibilities: CNS provides data and voice network services to the wall jack for the entire Berkeley campus, approximately 25,000 phones, more than 2,500 servers and 46,000 network connections using 120 routers. The backbone is physically and logically redundant, interconnected by Ethernet links running at 10Gbps. The network is also connected in redundant fashion to the greater Internet (including research and education networks) with more than 6Gbps of total capacity. The connection to the commodity Internet currently runs at more

Budget: \$22 million, just under a third of that for operations.

Staff size: 1,045 career full-time equivalents.

Worked as a programmer in the aerospace industry and then at UC Berkeley. Previous jobs: Started to concentrate on networking in 1983 and on TCP/IP networking in

1984. Moved into management in 1992.

Education: Bachelor's degree in statistics, master's degree in biostatistics, both from UC Berkeley.

Fun fact: Loves to windsurf in the San Francisco Bay and along the California coast.

The things you won't find in print

Read an expanded version of the interview. www.nwdocfinder.com/3178

ty advanced. But campus student systems [such as online registration and course catalogs] are less well-funded and organized because there has not been a single high-level sponsor. This is one of key things the campus is open to addressing in the reorganization.

What is your security plan?

Every networked device has to have its operating system kept up to date with security

See Berkeley, page 16

Sprint Nextel snaps up UbiquiTel

Sprint Nextel last week announced that it is buying UbiquiTel for \$1.3 billion. Sprint Nextel picks up 603,000 customers in nine states with the acquisition, which is pending shareholder approval. UbiquiTel is the fifth affiliate Sprint Nextel has acquired. The company was part of a group of affiliates in a legal dispute with Sprint Nextel over how it would be treated postmerger. In its deal with UbiquiTel, that legal dispute has been set aside. Sprint also has bought US Unwired for \$1.3 billion and Alamosa Holdings for \$4.3 billion. UbiquiTel offers Sprint Nextel

wireless services in California, Idaho, Indiana, Kentucky, Nevada, Tennessee, Utah, Washington and Wyoming. The company had \$422.7 million in revenue year-end 2005.

Linux standard expected this week

More than a dozen technology companies, including IBM, Red Hat and Novell, plan to support a new integrated server and desktop Linux standard to be unveiled at this week's Linux Desktop Summit by the Free Standards Group. The FSG is a nonprofit organization that has worked for years on many open standards, including a server specification called the Linux Standard Base. The group announced plans in October to work on a desktop standard, called the Linux Standard Base Desktop Project. Those two Linux standards have been integrated into a new Version 3.1 of the LSB, which is set to be released next week. A number of Linux providers, including Red Hat, Novell, the Ubuntu Linux project and Linspire, are expected to certify their products as compliant to the new LSB standard, according to the FSG.

Solarflare, Level 5 plan merger

■ Solarflare Communications and Level 5 Networks — two privately held Ethernet component start-ups - announced a merger last week that sets the stage for lower-cost 10G Ethernet server adapters based on common network cabling. Solarflare makes chips for 10G Ethernet switches and network interface cards based on unshielded twisted pair wiring, while Level 5 makes copper/fiber Gigabit and fiber-only 10G Ethernet

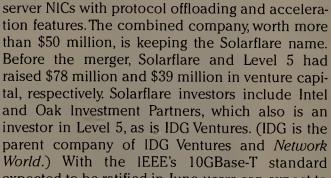
{quote of the week } quote of the week }

"Don't allow shared computers. Kids are too smart. They know how to get things like keyloggers, and it's happened."

Consultant Tom Walsh, who recommends that companies equip their telecommuters with dedicated PCs for work only.

See story at www.nwdocfinder.com/3177

tion features. The combined company, worth more than \$50 million, is keeping the Solarflare name. Before the merger, Solarflare and Level 5 had raised \$78 million and \$39 million in venture capital, respectively. Solarflare investors include Intel and Oak Investment Partners, which also is an investor in Level 5, as is IDG Ventures. (IDG is the parent company of IDG Ventures and Network World.) With the IEEE's 10GBase-T standard expected to be ratified in June, users can expect to see 10GBase-T products later this year.





"So with the track-thingy there, you say it can both flip and flop?"

Robin Jackson of Helena, Mont., wins our latest caption contest. Come back every Monday for a new picture and chance to win. www.networkworld.com/weblogs/layer8



TheGoodTheBadTheUgly

A start. Chinese President Hu Jintao dropped in on Microsoft headquarters during his trip to the United States last week and even made it over to Bill Gates' home for dinner. Hu reportedly assured his host that China is committed to protecting intellectual property rights, a vow that will take some doing given U.S. government estimates that 90% of the software used in China is unlicensed.

Not a good trend. The United States last year imported \$96 billion more in tech goods than it exported, according to the American Electronics Association. That figure was \$40 billion in 1999.

> < Didn't smell like phish. Despite all the warnings and educational efforts, 90% of study participants were still fooled by a well-crafted fake Web site. according to researchers at Harvard University and the University of California at Berkeley. Yes, the grim assessment held even for those who possess 'Net savvy and the misplaced confidence that they would know better.

Gisco, Hanoi researchers team up

Cisco said last week it has teamed with Hanoi University of Technology to open an R&D lab in Vietnam. The Networking R&D Lab is backed by Cisco's University Research Program and will be run by HUT's Bach Khoa Networking Academy, a training center for network managers also established by Cisco. The lab's goal is to further collaboration among researchers at HUT and other universities and research organizations, Cisco said. Cisco's University Research Program will fund research at the lab by soliciting research proposals that are subjected to a peer review. The company will provide research grants for those proposals that are approved through this process. While the R&D lab will give Vietnamese researchers more exposure and give them access to more-advanced technology, Cisco also stands to benefit. Technology developed by the lab may find its way into Cisco products, the company said.

Users warned of bank sites

Online bank customers may want to pay a little more attention to their browsers the next time they log on, because many of the most popular banking sites in the United States may be placing their customers at risk to online thieves, a security researcher warned last week. At issue are the user logon areas that can be found on banking sites, which ask users to submit their user ID and password information. Although these forms may be encrypted, they do not use authentication technology to prove they are genuine, says Johannes Ullrich, chief research officer at the SANS Institute. A more secure approach would be to have users to log in on a Secure-HTTP Web page. HTTPS pages use the SSL protocol, which not only encrypts the information on the page but also provides digital certificates to give assurance that the Web site in question is genuine. "If the login form is not HTTPS, you don't know if it's the real thing," Ullrich said.

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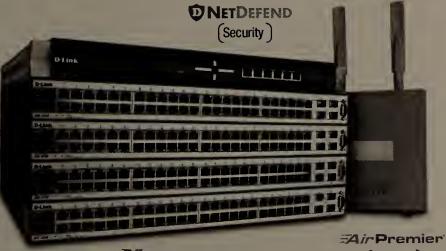
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(Wireless)





Advanced switch gear on tap at Interop

BY PHIL HOCHMUTH AND DENISE DUBIE

Several Ethernet and application switch vendors plan to announce products at the Interop show next week that are intended to make high-speed network gear more affordable and help users boost application performance and security

On the network side, Alcatel and SMC Networks are set to announce 10/100/1000Mbps switches for midsize and large companies, and Coyote Point, Radware and Stampede Technologies are expected to have new application acceleration products on tap that combine Layer 4-7 switching with traffic shaping, protocol offloading and security features.

Alcatel's switch and the SMC offering are further examples of advanced switch features such as Power over Ethernet (PoE), 10/100/1000 Ethernet and 10G becoming more affordable. Triplespeed or 10/100/1000 switch ports with PoE are now priced about the same as 10/100 ports without PoE were two or three years ago, industry observers say.

These LAN technologies are becoming more widely available and mature, and application switch vendors are including more features that go beyond wire-speed Layer 4-7 packet inspection and forwarding. No longer just balancing server loads or inspecting browser cookies, switch gear now includes such features as TCP/IP offloading,

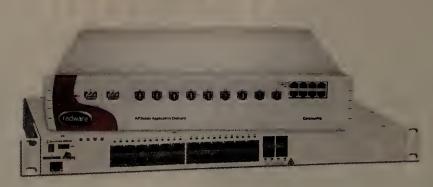
intrusion detection, and tools that accelerate service-oriented architecture (SOA) and Web 2.0-like applications.

These vendors are all slated to attend next week's Interop conference and expo, and will be among the 330 exhibitors and 18,000 attendees expected at Las Vegas' Mandalay Bay Convention Center.

Alcatel, making its first enterprise product announcement since its merger with Lucent, plans to offer 24- and 48-port 10/100/1000 switches with options for PoE and 10G Ethernet uplinks for connecting to a LAN core or aggregation layer. The OmniSwitch 6850 series switches can be bought with or without PoE, which costs an additional \$20 to \$40 per port (for 24and 48-port boxes, respectively), and comes with a beefier power supply and external power-shelf module. Optional 10G Ethernet ports use XFP pluggable form-factor modules and range from \$2,000 to \$4,000 per port.

The 6850 switch can support IPv4 and IPv6 traffic. It supports basic Layer 3 switching out of the box, but a \$1,000 software upgrade adds routing protocols.

More than 200 OmniSwitch 6850 switches are being deployed as part of a sweeping network upgrade at ViaHealth, a Rochester, N.Y., healthcare management company that includes Rochester General Hospital. The hospital currently has older-generation Alcatel switches, and is putting in the new boxes to support its simultaneous



Alcatel's 6850 series switch includes 10/100/100Mbps ports and PoE. Radware's Application Switch 5 provides 10G Ethernet and Layer 4-7 features.

wireless LAN (WLAN) rollout and bandwidth needs that have grown beyond 10/100 Ethernet.

"Our current switched network was about 7 years old, so it was time for an upgrade," says Donna VanHousen, senior director of information services and technology at ViaHealth. Plus, she says, "our applications are requiring more bandwidth and features."

The hospital's Picture Archiving and Communications System for handling digital radiology images is one reason for adding Gigabit to the network, she says. As the hospital brings up more than 300 Nortel/Trapeze WLAN access points, PoE on the Alcatel switches also will give the IT staff more flexibility in positioning access points.

The 6860 series competes with Cisco's Catalyst 3750 and 3Com's SuperStack III, as well as switches from Foundry Networks, Extreme Networks and Nortel, and is priced starting at \$4,000.

SMC also is offering a new 10/100/1000 switch without PoE or 10G Ethernet that's targeted at midsize enterprises. SMC8024L2 includes 10/100/1000 Ethernet ports and security features such as 802.1x port authentication, access control list support and Radius authentication. Traffic management features include 802.1g virtual LAN tagging, and 802.1v protocolbased VLANs, which can segregate various application types on different virtual LAN segments.

Application acceleration gear

Several application acceleration products also are scheduled to launch next week. Radware, Coyote Point and Stampede Technologies are expected to add gear to a market Gartner says topped the \$1 billion mark last year.

Radware plans to launch its

Application Switch 5 (AS5), a box that supports 17 Gigabit Ethernet ports and two 10G Ethernet ports, with full Layer 4-7 switching capabilities on each port. (The previous switch, the AS4, included 12 Gigabit ports and a single 10G Ethernet port). With this base Application Switch hardware platform, data center administrators can choose from two software platforms to run on top of the switch — AppDirector and Defense Pro.

The AS5 when deployed as an AppDirector handles load balancing and Layer 7 switching, as well as acceleration of HTTP, TCP/IP and other application-specific protocols. AppDirector also can terminate TCP/IP taking this processor burden off servers sitting behind the switch. The DefensePro platform is a high-speed intrusion-protection/intrusion-detection engine that can inspect traffic flows of as much as 6Gbps and catch intrusions and malicious packets based on known attack signatures and definitions. The AS5 is priced at \$70,000.

Stampede also intends to increase its share of the growing application acceleration market by introducing its Web 2.0 Performance Series appliances and corresponding client software. This product combination is meant to accelerate and optimize applications based on Asynchronous JavaScript + XML (AJAX, an emerging technology, used in mashup Web applications, for example), XML and other SOAbased technologies. The product can accelerate XML schema validation and content routing, as well as perform SSL client-side termination.

Stampede, a small company compared with Cisco, F5 Networks and Radware, could be tak-

ing a lead by incorporating acceleration capabilities for SOA applications, says Joe Skorupa, research director at Gartner.

"AJAX has the ability to break things as badly as HTTP 1.0 did. It is very connection-sensitive and data-intensive, and if you don't manage the cache appropriately you will have performance and server issues," Skorupa says. "The company needs to take its technical expertise and somehow turn it into commercial success, like Riverbed has."

Stampede also is set to launch its Acceleration On-Demand software, a client-side product to let users access from anywhere the same acceleration features as they would have in a main office or branch office with a Stampede appliance installed. The clientbased software taps into a Stampede appliance located on a company's premises and adds acceleration features to browserbased applications. This software is scheduled to ship in August and starts at \$35 for a single license. The Web 2.0 Performance Series box is set to ship at the same time, priced at \$35,000.

Coyote Point is ready to launch acceleration gear next week with its Equalizer E550 — a 16-port Gigabit switch that includes application-layer content switching and can support as many as 150,000 Web connections per second and 8 million concurrent connections with wire-speed throughput. The box, which also supports server connection-health checking and server failure-prediction alerts, is expected to be available this summer starting at \$13,500.

"For a company that doesn't need all the bells and whistles of an F5 or a Citrix NetScaler, Coyote Point represents a low-cost, low-risk purchase," Gartner's Skorupa says. ■

Heroix adds business features to software

BY DENISE DUBIE

Heroix is set to release this week an upgraded version of its application performance-management software that the company says can help customers understand how IT events affect the performance of business applications.

The company added event correlation, service-level agreement (SLA) monitoring, and baseline and thresholding features to Longitude Version 3, which the company says enables customers to monitor more network systems and devices and reduces the time to resolve problems.

For example, the baseline workload data feature eliminates trial and error when thresholding. Heroix says the software helps customers adjust thresholds for event notification based on how their networks behave to reduce false alerts. Another feature that automates notification and corrective action lets customers define under what condi-

See Heroix, page 14

PLANNER 2006

Read our guide to the important sessions, keynotes and happenings at next week's Interop show in Las Vegas.

Page 53



Multiple layers of security make life harder for hreats.

Multiple layers of security make life harder for your

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Proven Security"

VPLS slowly pushing out legacy networks

BY DENISE PAPPALARDO

Legacy data services such as frame relay and ATM will eventually become obsolete, but users will not have to give up on Layer 2 networking in order to make the transition to IP VPNs.

They do need to be patient,

A handful of providers, including Broadwing and Masergy, are offering Virtual Private LAN Service (VPLS), while others, such as AT&T and Verizon Business, have tests under way.

VPLS lets customers maintain control over their routes, much as they do with frame relay, but move their traffic to a fully meshed MPLS network (see "VPLS: Building on the success of MPLS," page 39). This Layer 2 technology, based on IETF draft specifications, is viewed as the logical migration path for legacy frame relay users.

Yet it is not widely available.

Last year AT&T said it would

offer nationwide VPLS in the first half of 2006, but the company won't confirm that timetable — or any timetable — today.

AT&T has VPLS available in the 20 metropolitan markets where SBC had been offering it before the merger of the two companies. Yipes is another service provider that offers VPLS locally in 14 metropolitan markets.

"We're looking at how to integrate [the metropolitan VPLS offer] into our overall VPN portfolio," says Burt Winter, executive director of MPLS VPN services at AT&T. "VPLS is not more difficult than any other technology. It's a matter of timing. It was only a matter of going into the merger and having different investment priorities. We have no vendor problems

AT&T also reiterated that it has no plans to shut down its frame relay or ATM backbones, saying it is continuing to make investments

Layer 2, beyond frame relay

Next-generation Layer 2 services are in the works, but they are not widely available. Here's a look at what is available and what's to come.

Carrier	Service	Technology	Availability
AT&T	Yet-to-be-named national Virtual Private LAN Service (VPLS)	VPLS	No timetable.
Broadwing	Converged Network Layer 2 VPLS	VPLS	Now
Masergy	Intelligent Transport Service VPLS	VPLS	Now
Sprint	SprintLink	Layer 2 Tunneling Protocol v3	Now
Verizon	Private IP Virtual Private Wire Service Private IP VPLS	VPWS VPLS	Trials third and fourth quarter respectively.

in both networks.

Last year Sprint was the first of the big three frame relay service providers to reveal its plans to shut down its legacy data networks. Sprint says it's on target with its plan to shut down these networks in 2009. "We're seeing a much better adoption of IPbased services. We had a target in mind to measure IP service adoption, and we doubled that," says Karen Emery, manager for data product simplification at

Sprint has no plans to introduce VPLS, but it does have a Layer 2 alternative. The service provider has been offering customers its SprintLink Layer 2 service for three years. The service is based on Layer 2 Tunneling Protocol, an IETF draft specification.

Despite the fact that Sprint has a mature Layer 2 alternative, Emery says the majority of legacy frame relay customers are moving to Layer 3 MPLS IP VPN services, not Sprint's Layer 2 service.

Verizon Business also says it has no plans to shut down its legacy data networks. But the service provider says it is testing two Layer 2 services and will begin customer trials in the third and fourth quarter.

Verizon plans to roll out a service called Private IP Virtual Private Wire Service. The service uses an IETF specification that spells out how to aggregate frame relay and ATM access circuits, and encapsulate them for transport over an MPLS core on a point-topoint basis.

The service provider also is planning a customer trial of its Private IPVPLS in the fourth quarter. Mike Marcellin, director of IP Ethernet networking at Verizon Business, says commercial services are expected to be available the quarter after each trial begins.

Customers that want VPLS today can buy services from lesserknown national carriers such as Masergy and Broadwing.

After issuing an RFPEducational Services of America chose Masergy's Intelligent Transport Service using VPLS, says Stewart Denton, director of information technology at ESA, a Nashville company that operates 104 schools for students with special needs in 13 states. The company has a 40-site VPLS network that is expected to include 100 sites.

"After doing five months of due diligence on Masergy, we went with the company even though we hadn't heard of them before," Denton says.

ESA is saving \$200 per month, per site, Denton estimates, compared with running a standard point-to-point frame relay network. A fully meshed frame relay network is cost-prohibitive, he says. "VPLS is very affordable and we have control over our routes."

One analyst points out that carriers are making MPLS IP VPN service more attractive to customers, even if Layer 2 versions aren't widely available.

"The carriers are offering incentives to get customers to migrate to newer services such as IP VPNs," says Ron Kaplan, research manager at IDC. Companies with contracts that will end soon should look at some of the new services that are out there before they simply renew with frame relay he says.

"Carriers are not using a stick as much as they're using lots of carrots," he says. Service providers are waying early contract termination fees for frame relay customers that go with an IP VPN service. They will also routinely wave installation fees, Kaplan says.

While it's important to plan, he says most users don't need to feel pressured to move off frame relay and ATM today. "If a customer is happy with their frame relay service, and it serves their purposes, they're set for the short term," he says.

Both AT&T and Verizon say they will not force customers off their legacy networks.

Vendors advance WLAN mesh

BY JOHN COX

CALABASAS, CALIF. — Strix Systems last week unveiled a redesigned outdoor wireless LAN mesh node, and a start-up named Cohda revealed plans to make such nodes more efficient in using

The new Strix product packs more radios — as many as six in all — into a smaller package and doubles the number of users each radio can support. The result is that outdoor mesh networks can handle more users and traffic with fewer nodes.

The Strix Outdoor Wireless System (OWS) 2400-30 can support any combination of 802.11 radios for client access and backhaul in a 12-by-10-by-6-inch box, which is 30% smaller than the company's previous model. Typically, two radios are dedicated for the backhaul connections, one receiving and one transmitting. These links route client traffic over the mesh to nodes that have a wired connection to the Internet or a corporate network.

Users also could plug into these same slots radios that use the 4.9GHz bands, spectrum that is set aside for police, fire and emergency use. In early 2007, Strix plans to release 802.16 radios, which support fixed and mobile WiMAX connections. The OWS 2400-30 can hold any combination of these radios.

Version 3.0 of the Strix operating system doubles to 128 the number of users who can associate with each radio. Company executives say that each six-radio node has a maximum capacity of 100Mbps that can be shared among client and backhaul connections, or about three to six times the previous limit.

The software also incorporates a new code that

lets each node make routing decisions, a technique that doesn't require an entire network to reconfigure around a failed link. That saves time, allows for building very large-scale networks and minimizes latency Strix executives say internal tests show zero data loss and zero added latency over 10 hops through the mesh. The OWS 2400-30 is available, priced starting at \$4,500.

Cohda has created technology to address a number of challenges facing mesh networks that result from the characteristics of the modulation technique used in 802.11g and 11a, and in WiMAX orthogonal frequency division multiplexing. Reflected signals, called multipath, can create slight delays at a receiver. If this delay exceeds 40 microseconds, the receiver starts to drop packets, says Martin Suter, Cohda's CEO.

The solution typically has been to compensate for multipath interference and the drop in performance by adding more nodes - and therefore more cost and complexity — to a mesh network.

Cohda has created digital signal-processing code, which it will license to OEMs such as Strix, that will let the radio receivers compensate for this delay spread. The code, Suter says, increases the sensitivity of receivers, helps to maintain non-line-of-sight radio links with mobile clients, increases the reliable transmission range by 75% and minimizes interference.

Suter declined to go into more detail, saying the product will be announced later in 2006. Cohda is in talks with several OEMs, he says, but he won't say which ones. The company raised \$1.8 million in series A funding, after its founding in August 2005.

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Water and Market To the Bullet

IT turning green

Govt. regulations mean environmentally friendly hardware is on the way.

BY JENNIFER MEARS

As IT buyers focus on finding the most energy-efficient and coolest-running data-center systems, another environmentally friendly trend is taking off in the industry: the requirement to build hardware free of toxic substances.

The trend is the result of a European Union directive called RoHS (pronounced Roh-Hass or Ross) that requires any electronic equipment sold in the EU after July 1 be free of lead, cadmium, mercury and other toxins. While there is no similar legislation on the federal level in the United States, the regulation is having a ripple effect in the United States because vendors typically have a standard manufacturing process regardless of where a product is sold.

That means hardware vendors, including Dell, HP, IBM and Sun, are in the process of transitioning their global product lines to be RoHS compliant.

Experts say the regulation should be good news for users, who will find it easier to dispose of equipment that doesn't contain hazardous substances.

At the same time, issues could arise as the migration happens, analysts say. Products could be delayed if there are problems finding RoHS-compliant components. In addition, there may be questions about whether older equipment that is not compliant with RoHS will continue to be serviced even though the EU directive allows for hardware manufactured before July 1 to be serviced with non-RoHS-compliant parts.

"What enterprise buyers need to do is make sure they are educated and ask the right questions to find out the [RoHS] migration plans from wherever they are buying," says Eric Karofsky, a senior analyst at AMR Research.

Buyers should purchase from established vendors that can be relied on for long-term service commitments. "And ask them about future serviceability," he says.

Another concern is that RoHS-compliant products may have to be recertified as they are brought into enterprise environments.

Vendors, meanwhile, say they have been working on meeting these regulations since they were announced in 2003, and have val-

What is Rous?

- The RoHS Directive stands for "the restriction of the use of certain hazardous substances in electrical and electronic equipment."
- It bans lead and other hazardous substances from equipment sold in the European Union after July 1, 2006
- A similar regulation will go into effect in California on Jan. 1, 2007, and analysts expect other states to follow

idated and audited RoHS-compliant products along the way.

Corporate buyers should find "a fairly seamless transition" to the RoHS-compliant equipment, says Scott O'Connell, environmental program manager at Dell. "We haven't found any real differences in the transition when we've moved from a lead-based solder to the lead-free alternative. We've done additional reliability testing to ensure that we meet the applicable quality standards there."

O'Connell doesn't see a prob-

lem with serviceability of legacy hardware either.

"As we transition, we're ensuring that we have sufficient supply of the old noncompliant parts, so we can enable our customers to service their current installed base," he says.

Interviews of a handful of IT buyers suggested most are not familiar with RoHS, except for those who make or resell electronic or systems. But vendors are starting to put a heightened focus on RoHS efforts.

IBM while announcing its new System x servers last week, underscored the products' RoHS compliance. System x is the new name for IBM's x86-based eServer xSeries. System x servers are designed to be scaleable platforms to support multiple workloads on a single physical system through virtualization technology.

Blade Network Technologies, a Nortel spin-off that builds network switches for the blade server market, is another vendor that recently highlighted its RoHS effort, announcing earlier this month that it was shipping its first RoHS-compliant product.

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tions the software should generate an SNMP trap to capture data or execute on a command, the company says.

Industry watchers say Heroix, which serves mostly small to midsize businesses, updated the software and kept its ease of use. Longitude, which competes with lpswitch's WhatsUp Gold, Mercury Interactive's SiteScope and products from Microsoft, can scale to address enterprise-level monitoring needs, company representatives say.

"It is still an easy-to-navigate product that IT professionals can learn as they use it without extensive training, and now it has capabilities to take corrective action and to relate IT events to business services," says Jasmine Noel, a principal analyst with Ptak, Noel & Associates. "And being agent-less, it's great for midsize companies that don't have the staff to update agents with every software release."

Longitude is installed on a dedicated server and makes use of industry-standard APIs to collect data from managed machines. The management software collects data from servers, operating systems and applications — and now with this release routers and switches.

"Going forward, the company could incorporate application-discovery features and relationship mapping into the software," Noel says.

For Tom Harrop, project manager for the IT infrastructure group at Fallon Clinic, in Worcester, Mass., the newly added device support makes his Longitude implementation more valuable.

"When we started with Heroix, we looked for a product that would help us integrate tasks into one solution, and what was missing before this release was the ability to monitor routers and switches," he says.

Pricing for Longitude Version 3's basic operating system monitoring starts at \$299 per monitored system. ■

Postini adds user message archiving to e-mail service

BY CARA GARRETSON

Messaging security service provider Postini this week plans to augment its archiving offering with a feature that lets users store e-mail and instant-messaging communications somewhere other than on the company's servers.

Postini's Personal Archive extends the company's Archive Manager service that was launched last December by giving users a Web-based interface for accessing all of their archived e-mail and IM messages. This means IT administrators can confidently purge messages stored on the mail and IM servers, knowing that archived versions of those messages are immediately available to their users without requiring IT staff intervention, says Andrew Lochart, Postini's senior director of marketing.

"The average user spends 30% of their day in e-mail, creating it, sending it or reading attachments," says Michael Osterman, president of Osterman Research. "Giving end users self-service access [to stored e-mail] is important. Often users go to IT and say, "I've deleted an e-mail," and that tends to be very disruptive to I'T [to recover], or IT just says, "Sorry, we don't have the bandwidth to help you."

More isn't better

In a December, 2005 survey of 615 Postini users, 74% named the sheer volume of

named the sheer volume of legitimate messages the biggest concern regarding electronic communications in 2006.

When deleted e-mail contains information that must be archived per regulations, the situation becomes more difficult, Osterman adds.

A number of hosted e-mail security providers offer archiving as part of their services, including MessageLabs and Microsoft, via its FrontBridge acquisition last year. Osterman notes that because message archiving represents only one portion of an enterprise's archiving needs, there are dozens of ven-

dors focused on providing a wide range of archiving services for all types of corporate information.

However, it makes most sense for the messaging-security providers to offer companies message archiving, Osterman says. "If the vendor is already touching the mail stream for anti-virus and anti-spam, archiving is not much of a stretch," he says.

When Postini first launched its Archive Manager service late last year, the company assumed customers would want archiving for document retention and regulatory or legal compliance, Lochart says. But customers quickly began asking for a way to use Archive Manager that would take the stress off of internal mail and IM servers that results when the message stores become overloaded, he says.

"Users are making e-mail their universal filing cabinet, so there's another reason to archive messages [besides compliance], and that's to offload them from primary mail servers that are slowing down to a crawl," Lochart says. "Exchange and Domino weren't built to be the repository of some of the most important information in a business."

Archive Manager stores all of a company's e-mail and IM messages at its facilities and indexes them so they can be easily searched, but only by the customer's authorized IT administrators. Personal Archive opens that archive access to any employee, using the same Web interface that Postini customers use to manage their spam quarantine folders and white lists, Lochart says. No one has the authority to delete e-mails from the archive, but messages are automatically purged after whatever time period specified by the customer, usually between one and nine years.

Customers must use Archive Manager to add Personal Archive. Archive Manager is priced from \$90 to \$300 per user per year, depending on how much archiving capacity the customer needs and the retention period. Personal Archive costs an additional 20%, Lochart says.

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Berkeley

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patches — Windows 95 is not allowed unless you buy a separate firewall device and stick it in front of [Windows 95]. There are microscopes controlled by old operating systems - [the owners] have to put a firewall in front of them. We have software that people can use for free — they don't have to buy their own firewall or anti-virus software.

Having a policy only goes so far. McAfee's Foundstone scanner allows us to scan the network continuously for vulnerabilities. [If something is found] we tell [the device owners] to fix it or we turn off their access. Departments can log in and scan their own nets.

How else do you secure the network?

We do intrusion detection at the border of the campus network and more and more inside the network. We monitor to detect

"[Intrusion detection] is a big issue because we've had some pretty big security breaches on campus."

Clifford Frost, director of Berkeley's CNS

when systems have been broken into or are being broken into or about to launch an attack, and we can turn them off. We use McAfee IntruShield Snort, Nessus and Bro Intrusion Detection System. [Intrusion detection] is a big issue because we've had some pretty big security breaches on campus [see www.nwdocfinder.com/3145 and 3146]. There is a big thrust in getting people to encrypt data on their desktop or laptop.

How do you get ahead of the security challenges?

The latest thing we're doing is getting people on campus to audit their systems, and the recommendation is to remove [sensitive information]. If they have to have it, we will help them secure their system with tools for encryption. This isn't just a Berkeley problem; it's a problem for every single university in the country.

Were these measures enacted after the breaches?

The encryption one was accelerated by the breaches. We were working on scanning, but boy did we start doing it a lot more. The whole campus culture was affected. Everyone on campus is in the business of doing research and sharing information. Everyone on campus knows we don't want to be sharing Social Security numbers, but it does create tension between sharing and security. It takes educating users. So far I haven't experienced resistance to education, but the amount we have to do is pretty staggering.

How are they still able to share information?

The best way is not to have any sensitive information on your system. Why do you

need to have people's Social Security numbers in records? Because it's a unique ID you can take that data and transform it and keep the uniqueness.

What's your relationship with the Department of **Electrical Engineering and Computer Science? Why** does it manage its own network?

There was a time when we managed what was called a production network and they managed their research network — for a faculty member this wasn't a meaningful distinction. If he wanted something done with the network, who should he call? CNS or Fred in research? It didn't work out. Everything needed the Fred-level of attention. We help them with the design and specifications. When we do RFPs for networking gear, we do them together, so they purchase gear on contracts we work out. When they have special research projects that go beyond the bounds of their two buildings, we work with them on that. There's the Millennium Project [EECS's managed clustered computing service] for which we set up the network around campus.

What do you learn from the EECS department?

I look to them for long-range developments. There's a very high-profile project there called PlanetLab [described as 'an open platform for developing, deploying and accessing planetary-scale services'; UC Berkeley is a consortium member along with Princeton University and the University of Washington]. It's not just about networking — one of the aspects is what if we have to address not just computers but cell phones. How does networking work if we scale the size of things up several orders of magnitude? For example, the department has Smart Dust — tiny sensors that run TinyOS and TinyDB. They scatter this stuff out there — put it in trees, on animals — they're all networked together and people monitor them. That's different than [managing] a connection in every office.

The best example [of what we're learning from EECS] is wireless, which on campus was started as a research project. When we started in 2000, Wi-Fi wasn't that common. [The EECS] started building wireless networking in their buildings and they wanted to research how people used it in the wider area. They came to us and said we have a research partner who will sponsor us and help pay for putting a network out there. The research partner funded 100 wireless cards for students to use. In the first years, students had to agree they were part of the project and that their activity on campus would be tracked – anonymously. That went on for a year, a year and a half. At the time, we named the wireless network AirBears and we started installing it as a service outside of the research project.

Now we're experimenting with mesh networking. In the last year or so, we've been using alpha and beta products from Cisco [released in November as Aironet 1500 Series Access Point]. The mesh is a swath through the middle of campus. We're looking to expand it to where students want it, which turns out mostly to be the restaurants on the south side of campus.

Where is the school headed in high-speed networks?

One view is that the researchers on the UC campuses will need a whole lot more capacity because they will have a lot more data they want to share. A school of thought is that we have high capacity between the campuses and we'd make it higher for everyone to share. Another school of thought is that these researchers need their own fiber path from their lab at UCLA, for example, and the lab at Berkeley. Maybe a piece of the Lambda light that goes across. Right now the network between us, UCLA — all the higher-education institutes in California — is CalREN [California Research and Education Network], provided by CENIC [Corporation for Education Networks Innovations in California]. The capacity between us and UCLA is 2Gbps; we already plan to make that 10Gbps within two years. Depending on demand it could happen in six months. The EECS has expressed interest for higher capacity and because of that, it might happen in the summer. We're ready to do it; it's just a matter of expense.

What are the key priorities for your department?

There are still a couple of dozen buildings where the physical infrastructure for networking is ancient. If somebody wants a 100Mbps connection, we can't give it to them. There aren't that many disciplines left where networking isn't critical so that's a big issue for us. We're making steady progress — we've got another few years to go.

Another priority is distributed storage networks, and I expect to see clustered computing and high-performance clusters becoming a big issue. The distributed storage networking would be between the main campus data center and college of chemistry and business school. That's the tip of the iceberg, we think. Both have incredible amounts of data. As for clustering, there are a few computational clusters already around campus for traditional math, physics, astrology, computer science, computational biology and probably chemistry. A central IT organization should be able to build a very powerful computational cluster more efficiently.

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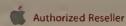
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Microsoft

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Microsoft, however, has made scant progress on SDM tools.

Last year, the company released Visual Studio 2005, which gives developers basic features for building SDM-based management models into applications, and Visual Studio Team System, which involves testers, architects and IT staffs in addition to developers in model-building.

Microsoft also won industry support for a Web-services standard it created called WS-Management, which is the transport protocol for SDM models and is under review for ratification by the Distributed Management Task Force.

But Microsoft's big guns that could jump-start SDM are missing — most notably the next versions of MOM and SMS that incorporate support for management via SDM models. Microsoft is expected to launch the first public beta of MOM Version 3 at MMS, and SMS Version 4 is slated to ship early next year.

"Last year they talked about

Building a platform

Microsoft three years ago introduced the Dynamic Systems Initiative (DSI), its decade-long plan to build a comprehensive management platform for Windows. In the next 20 months, the company plans to release a range of software to boost its fledgling management plans.

Software	Description	Delivery
System Management Server (SMS) R2	Includes integrated scanner and support for third-party patches.	May 2006
Microsoft Operations Manager (MOM) 3.0	Along with SMS 4.0, includes first support for System Definition Model, the modeling technology that's key to DSI.	End of 2006
SMS 4.0	Integrates with Longhorn's Network Access Protection and new Windows Image format file.	First half of 2007
Systems Center Capacity Planner V2	Expands beyond Exchange, MOM-only support.	2006-2007
Systems Center Reporting Manager V2	Deeper integration into the platform.	2006-2007
Longhorn Server	Ties into upcoming MOM, SMS feature sets.	2007

these health models in an abstract way," says analyst Pawlak.

"They didn't say what tools MOM V3 would have to support these models. They didn't say how Orcas [the next version of Visual Studio] would allow you to develop these models as you develop your code. They have to talk about that this year. And they should have a finalized schema for SDM, something

they have published that goes into what this thing looks like," he adds.

Microsoft officials say they are evaluating whether the SDM schema they have created should be turned over to a standards body as some analysts have suggested. But first Microsoft says it wants to come up with a solid implementation a standards body could begin to evaluate.

Microsoft for its part says SDM's model-based policies are a major area of investment this year, along with virtualization and expanding System Center for what it calls knowledge-driven management.

"I think you are gong to see a marked improvement in SDM with the new MOM and SMS versions," says Felicity McGourty, director of product management in the Windows enterprise management division.

"Sometimes progress on DSI is equated with progress on SDM implementation," McGourty says. But she says the two are not intertwined: "We do not want to have customers wait for our [SDM] architecture implementation. We want to know how we can give customers benefits against our current products."

McGourty cites examples such as MOM management packs that begin to offer health models, and prescriptive guidance provided through Solution Acelerators for optimizing SMS for certain tasks.

But partners say some interested parties aren't expecting to hear anything that substantial. "Many of our customers aren't going to the show this year because they don't expect to learn anything new," says one partner who requested anonymity.

Other partners say Microsoft has gotten ahead of itself. "With DSI, I don't think they are as far along as they think they are," says another partner who asked not to be identified. "They aren't getting the tools and the appropriate products out the door."

The partner says that its products to extend the DSI concept often can't be installed correctly because users don't have SMS configured the way Microsoft would like. "Everything has to be golden on the SMS or MOM side for us to put our stuff in and have it work."

But some analysts say, given the nature of the project and its decade-long time frame, Microsoft isn't doing so badly with DSI, which is similar to initiatives churning away at HP,IBM, Sun and other vendors.

"The priority that they are putting on this is not going to deliver it in the time frame that they originally envisioned," says Andi Mann, an analyst with Enterprise Management Associates. He says any delay, however, must take into account the delays in the Longhorn operating system, which was slated to ship in 2004 when DSI was announced and now won't be ready until late 2007.

"It's a big leap to go from manual management to automatic, and then it's another major leap to go from automatic to autonomic," Mann says. "It's not a surprise it is taking Microsoft time to get significant results."

CA offers free database mgmt. tool

Unicenter Database Command Center allows for work across various databases.

BY DENISE DUBIE

CA this week will make available a free distributed-database management product that could help administrators manage multiple heterogeneous databases across networks.

Unicenter Database Command Center (DCC) is a Web-based database management console that customers can download to any workstation or laptop with access to a browser. The software does not require any client software be installed on databases. CA says DCC gives database administrators a common look and feel when they're working across various systems.

"This tool allows you to manage and execute

commands on various databases, such as Oracle and DB2," says Rich Ptak, principal analyst with Ptak, Noel & Associates. "It's going to help customers because going forward, the big issue in management is how to coordinate multiple configurations and other databases. This type of unified console is a start."

While each database vendor provides management tools for its own offerings, CA says DCC lets customers perform administration tasks on DB2 UDB for z/OS, DB2 UDB for Linux Unix, lngres, Oracle and Windows databases. Ingres is CA's open source database technology that the company spun off last year for the open source community to develop further.

DCC lets administrators bring data in from a different database or send it out for reporting purposes. It also provides a reorganization capability, which is much like a PC defragmentation process that puts the data back into an efficient format.

"When you don't reorganize your databases, you are wasting space and most likely suffering from performance issues," says David Schipper, vice president of product management at CA.

DCC also provides centralized schema management, which lets database administrators create, alter and rename objects specific to each type of database from a common inter-

face, CA says. DCC also provides unified crossplatform account management tools that let administrators grant and revoke access privileges and assign user roles.

"With an ever-increasing number of databases being supported by enterprises, the need for unified administration is growing. Enterprises want a unified solution to simplify administration, reduce cost and improve operational efficiency," Noel Yuhanna, senior analyst at Forrester Research, recently wrote in the "Trends 2006: Database Management Systems" report.

The free download also could lead more database management customers to CA, Ptak says. DCC gets them started and comfortable with the CA management interface across the various platforms and potentially opens the door for CA to gain market share from competitors such as BMC Software and Quest.

"It's based on the open source model, in which customers get something to start and then can grow as they'd like to other licensed products," he says.

DCC integrates with higher-level database management tools, such as Unicenter Fast Unload (pricing starts at \$800 for a license) and Unicenter TSreorg (pricing starts at \$1,000). Customers can download the free software from CAs trial page at www.nwdocfinder. com/3176.

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Rootkits aren't doom - but keep up defenses

BY JOHN FONTANA

Rootkits do not signal impending doom for corporate IT, but companies need to keep up their defenses as the malware tools begin to spread, experts say.

The best way to deal with rootkits is to

prevent infection in the first place — which is easier said than done. Besides maintaining traditional layers of security — firewalls, anti-virus software and patching — experts recommend locking down desktops to control software installation and operating

system manipulation.

"Rootkits are not an end-of-the-world situation," says Rob Murawski, a member of the technical staff in the U.S. Computer Emergency Response Team (CERT) Coordination Center. But it is an arms race between those that create rootkits and those that create detectors."

And that race is reaching a fever pitch. The number of rootkit attacks reported to McAfee labs in the first quarter of 2006 was up 700% compared with the same period in 2005 (see www.nwdocfinder.com/3175), McAfee says.

A rootkit is malware that slips into a system and hides, and gives no indication that the system has been compromised. It can be used for any number of misdeeds, such as installing backdoors that can be used for remote access by hackers, or allowing a machine to be used as a staging point for attacks on other systems, according to CERT. Rootkits also can discover that security tools are looking for them and dodge

While traditional malware tries to wreak as much havoc as possible, rootkits are being used to aim at focused targets, such as banks.

"What we've seen with rootkits is the transition from the notoriety-type virus writer to the for-profit virus writer," says David Frazer, director of technologies for F-Secure, which develops an anti-rootkit tool called Blackight. "The more professionaltype malware writers have R&D. They have external funding."

Those efforts are producing custom rootkits with unique signatures that can't be discovered by automatic detection tools, such as Hacker Defender, that use documented profiles of well-known rootkits.

Last year, the University of Connecticut found a rootkit that had been in its network for two years. The university said no data was compromised because the rootkit failed to install properly.

associated with the rootkit.

"The stakes are raised in this cat-andmouse game," says Mark Russinovich, chief software architect for Windows management vendor Winternals Software. There is now a lot of funding behind the creation of malicious code, he says, "making it lucrative to come up with innovative ways of delivering malware and keeping it on people's machines."

Russinovich is the developer of Root-KitRevealer, one of the top rootkit detection tools, but he admits the tool is not a cure-all and that if users suspect they have a rootkit "they should run every rootkit detector they can get their hands on."

While many rootkit detection tools are emerging, the stealth of rootkits makes discovery and eradication daunting, experts

In April 2000, CERT published a list of options for getting rid of rootkits, including backing up data, wiping hard drives clean and starting over with a fresh installation of an operating system. Microsoft officials raised eyebrows two weeks ago at the annual InfoSec security conference by endorsing "wipe and restart" as a solution to the problem. Users who have tried to remove rootkits say starting over fresh is the most cost-effective remedy.

"You don't take rootkits out of Windows, not if you charge by the hour," says Jayson Vantuyl, senior consulting partner for Confidence LC. "You end up spending a huge amount of time doing that. It's a maze."

Vantuyl says he has extracted about six rootkits from both Unix and Windows operating systems in the past 10 years. He sees rootkits as the natural evolution of viruses as they become more sophisticated. "A rootkit is a virus' big brother, it's what a virus becomes when it grows up," he says.

Winternals' Russinovich, however, says there is no reason to panic. "What we have to do is deploy the tools that are available and implement best practices in the security space to keep those machines clean."





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Rootkit varieties

There are several rootkit classifications depending on whether the malware survives reboot or executes in user mode or kernel mode. Here is a look at the

olacocc of rectific.	
Rootkit	Characteristics
Persistent	Activates each time the system boots. The rootkit must store code in a persistent store, such as the registry or file system, and configure a method by which the code executes without user intervention.
Memory-based	Has no persistent code and therefore cannot survive a reboot.
User-mode	Intercepts calls to APIs and modifies returned results. For example, when an application

Kernel-mode

Not only can it intercept the native API in kernel - mode, but it also can hide the presence of a malware process by removing it from the kernel's list of active processes.

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Google points search at corporate applications

BY JOHN FONTANA

Google last week demonstrated its interest in winning over business users with the introduction of features for its corporate search appliance that can crawl through data from business applications.

The Google OneBox for Enterprise, which will ship later this month, taps into technology that Google has used for years on its consumer search engine that provides specialized results when users type in package tracking numbers, addresses or keywords such as "weather" and "define." Google has nearly 60 such specialized search modules integrated into Google.com.

Google also is launching the Google Enterprise Developer program and an API to encourage developers to write modules that will link applications with the OneBox search features.

Through integration with partners Cisco, Cognos, Employease, NetSuite, Oracle, SalesForce.com and SAS, users can point the Google search engine at those backend systems and return information at the top of their search results.

Google also has added support for crawling the Windows file system, and independent developers have added a module for Microsoft Exchange that returns user information, such as phone and cell numbers and free/busy time on calendars from the Exchange directory.

"We are seeing a new strategy from Google that is overdue," says Whit Andrews, a research vice president at Gartner. "This says we are going to start behaving like an enterprise applications company that has APIs, has a vigorous reseller program, that recognizes our inability to do everything and which depends on partners."

But Andrews says Google must prove to users that its enterprise play is not just a Trojan horse for the advertising model that has earned 99% of its revenue.

Google's Enterprise division is tiny. It has about 100 employees, and software licensing represents 1% of the company's overall revenue, which was \$6.1 billion in 2005.

Some observers say evidence of Google's growing interest in the enterprise market is its focus on serving the needs of large cor-

porate customers, which has been a question mark in the past.

"They are improving security controls, scalability, expanding capacity for both documents and queries, and that is making them more and more relevant for large enterprise-scale applications," says Matt Brown, an analyst with Forrester Research.

In terms of security, OneBox supports authentication mechanisms that preserve access controls to the back-end applications it searches to make sure users see only the data they are authorized to access. Google has added support for the Security Assertion Markup Language, the Lightweight Directory Access Protocol and X.509 certificates. It also has added an authentication API to go along with its authorization API.

Users with an existing single sign-on deployment can tie that into the Google engine; however, users without such network capabilities will have to log onto each application before the Google appliance can search those systems.

"We see siloed information within com-

panies, and we see search as a way to break that down," says Dave Girouard, vice president of Google Enterprise.

Microsoft and IBM see that, too. Google will compete with Microsoft's SharePoint Server, IBM's WebSphere Portal, along with other portal and content-management vendors looking to ease discovery and access to information across corporate networks. Google also competes with business search engine UltraSeek.

The OneBox for Enterprise includes increased performance that allows as many as 3 million documents on a single server and boosts the query speed to 25 per second, a fivefold increase over the previous version of its search software.

In addition to the OneBox for Enterprise, Google released a new version of its Mini Search Appliance that is half the previous size and weight. It includes new reporting features, file system crawling and support for SNMP for integration with management systems. The performance also has been increased to 25 queries per second, and it is localized into six languages.



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Manufacturers eye on-demand software

Hosted apps sought for supply-chain functions, such as demand planning and factory scheduling.

BY ANN BEDNARZ

Manufacturers of all sizes are looking into hosted software for core supply-chain functions, such as demand planning and factory scheduling.

In a recent supply-chain spending survey, AMR Research found 26% of companies are considering on-demand service offerings. Driving interest is the need among manufacturers for tools to streamline business-to-business processes across increasingly distributed supply-chain networks. Going the software-asa-service route lets companies avoid the capital investment and complex deployment associated with conventional licensed applications.

It's a model that has done well in the CRM world. The success of NetSuite, Salesforce.com and Salesnet has influenced traditional software makers to tweak their lineups — including SAP, which unveiled an on-demand version of its CRM software earlier this year.

Web-centric environments are not new to manufacturers. Online business-to-business trading hubs peaked in the 1990s

An on-demand supply chain

Software makers are taking advantage of connectivity and user interface enhancements to build more hosted, multitenant supply-chain applications. For IT, the trend presents opportunities and issues that are worth watching:

Strengths

- Lower upfront deployment costs.
- Predictable pricing, upgrade cycles.
- Web-native software complements today's distributed, collaboration-heavy supplychain networks.

Challenges

- Offsetting assumption that supply-chain software is too complex for Web delivery.
- Managing security and reliability concerns.
- Streamlining integration with on-premises software.

and some, such as E2open, thrive today as community market-places and hubs for trading-partner collaboration. But the hosted, multitenant software model is relatively new to the supply-chain world.

"The reason software-as-a-service has taken off in CRM but not in core supply chain is that a lot of supply-chain applications are computationally intensive," says Mark Hillman, a senior analyst at AMR Research. Users traditionally have needed the speed and

power of a client-server application, he says.

That's beginning to change. Broader availability of wireless and broadband has improved access and performance, while Web services APIs have helped streamline application integration efforts. In addition, technologies such as Asynchronous JavaScript + XML (AJAX) are letting developers add bells and whistles to the user experience while cutting back on datatransport requirements.

In response, vendors have built hosted applications that offer core supply-chain features such as distribution planning, contract management and factory scheduling — delivered over the Web.

JRG Software, which CDC Software acquired in February, is tackling one of the more computationally intense elements of SCM. It offers Web-based factory planning and scheduling applications aimed at helping companies improve store fulfillment rates, trim order-to-production times and respond more quickly to demand fluctuations.

Other vendors with hosted supply-chain software are emphasizing collaborative sourcing and procurement functions. Procuri, for example, offers on-demand software for spending analysis, supplier management, sourcing and contract management. Emptoris, which merged this month with contract-management vendor di-Carta, offers a similar line-up of supply management software that users can opt to deploy on premises or via a software-as-a-service model.

Newcomer Mitrix is something

of a hybrid. Its on-demand suite includes collaborative features such as private trading communities, as well as more traditional supply-chain management functions, such as forecasting, inventory management, fulfillment and logistics.

For customer Hampton Products International, the combination will enable better communication with its suppliers.

"If our suppliers have access to what's moving and what our customers are doing, this is to their advantage. They can anticipate demand a lot better," says Charles Anderson, vice president of global supply-chain management at the Foothill Ranch, Calif., company, which makes security products and accessories.

One result the manufacturer hopes to achieve with Mitrix's SCM Live software is faster turnarounds. "We would like to begin to whittle away at lead time," Anderson says. "Long lead times just add cost to the entire supply chain. Short lead times reduce cost. It's real simple."

Part of the appeal of Mitrix is its roots: The start-up software maker is a subsidiary of Japanese conglomerate Mitsui & Co., which built the Mitrix system to handle supply-chain activities for its assorted business units.

"They're dealing with some of the same countries that we're dealing with. They're dealing in manufacturing environments as well as distributor environments. They're dealing with import and export issues, which is a big part of our business," Anderson says. "They understand the fundamentals and have hands-on experience with all supply-chain activity."

Virtualization vendors take aim at desktop

More than 20 join VMware to form industry group targeting efficiency, flexibility.

BY SHELLEY SOLHEIM, IDG NEWS SERVICE

VMware this week will announce it has formed an industry group, the Virtual Desktop Infrastructure Alliance, with more than 20 other software, hardware and service providers. The alliance is aimed at building joint virtual desktop offerings.

VMware, a subsidiary of EMC, envisions desktop virtualization, in which IT administrators host and centrally manage desktops in virtual machines on servers in data centers, as a way to mitigate costs and time spent on managing and securing desktop PCs, especially for companies with remote workers or outsourced operations.

Charter members of the group include application virtualization vendors Altiris and Softricity; thin-client computing providers Citrix, Sun and Wyse; and PC blade and server blade makers ClearCube, HP and IBM. With desktop virtualization, users could use traditional desktop PCs, thin-client devices or other hardware that

can connect to servers through Microsoft's Remote Desktop Protocol.

"The potential here is a lot more efficient use of hardware, better centralized management and potentially more flexibility with users in that they're not tied to a particular desktop device," says Gordon Haff, senior analyst for Illuminata. "I don't believe there's a one-size-fits-all approach, we'll probably end up with a combination of thin clients and various types of fat clients."

"Desktop virtualization is a very immature market, but we do see some customers doing it, because it gives them the ability to physically house operating systems and data files somewhere they have control, whether that's for security or manageability reasons," says Al Gillen, research director for system software at IDC. "Where it becomes more attractive is where customers use thinclient devices, when they move from a fat client to a thin client on the desktop. That's where the real benefits in acquisition and

ownership costs can be realized."

But vendors still need to do a lot of work to make it easier and less expensive for users, analysts say. One of the biggest technological hurdles does not lie in hardware, but in software to manage images, provisioning and connections, Haff says.

VMware will collaborate with members to create, test and integrate joint desktop hosting offerings, says Jerry Chen, director of enterprise desktops for VMware.

Jim Jones, senior network administrator, with WTC Communications, a 30-employee service provider in Wamego, Kan., has used VMware to consolidate servers. Last September he started to virtualize some of the company's desktops.

"It kind of happened naturally; we needed a PC in short order, and we just had an old junker lying around. So we thought let's just try Windows XP in it, and it was neat and it worked. We didn't have to go out and buy another Dell," Jones says.

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Short Takes

- with a mobility appliance start-up to demonstrate handoffs between cellular and Wi-Fi networks, the company said last week. Trapeze said its wireless LANs can interoperate with appliances from **DiVitas** to let any Microsoft Windows Mobile 5.0 handset go seamlessly from a cellular to a Wi-Fi network. With DiVitas client software on the handset, a user talking on the phone could move from one network to the other and back without any involvement by the cellular service provider.
- Kaspersky Lab has released a beta version of mobile anti-virus software for smart-phones using the Symbian operating system. The product, called Kaspersky Anti-Virus Mobile 2.0, can stop suspicious programs before they infect the phone and scan devices for malicious software, the company says. The software is equipped to block suspect Short Message Service and Multimedia Messaging Service messages. It can be set to download regular updates from Kaspersky Lab servers by Wireless Application Protocol or HTTP. Anti-Virus Mobile is compatible with phones using the Symbian 6.1, 7.0s, 8.0 or 8.1 operating system versions and the Series 60 user interface.
- Buffalo Technology has announced a combination router and access point, a PC Card adapter for notebooks, and a PCI adapter for desktops. The products are based on Draft 1.0 of the IEEE 802.11n standard, which boosts the real throughput of wireless LANs beyond the 100Mbps speed of the typical wired Ethernet connections to a PC. The Air Station Nfiniti Wireless Router and Access Point has an integrated, fourport 10/100Mbps Ethernet switch, Buffalo says. The combined router and access point and notebook adapter are available at www.pc connection.com for \$179 and \$129 respectively, The PCI adapter costs

The hard sell of the IP softphone

BY PHIL HOCHMUTH

Corporate users are talking on IP softphone clients everywhere — or nowhere, depending on whom you talk to.

While use of PC-based VolP software is taking off in homes and college dorms, the use of softphones in companies remains somewhat mixed. They are having some success among road warriors and telecommuters, as well as telephone-centric workers such as call-center agents.

Telephony software on PCs has been around since the 1990s, but the emergence of Skype and the wider adoption of broadband have made the technology more accessible and familiar than ever. Many companies also now support pockets of softphone users or even large divisions of traveling employees with the technology.

"The IP softclient is a big thing for us," says Steve Lydston, network manager for Nissan North America, whose company is in the process of installing Siemens softphone clients on more than 1,000 laptops for its executives and mobile users. He says deploying softphones on the laptops of executives traveling abroad provides measurable cost savings.

"[Users] could be ringing up hundred-dollar cell phone bills by making cell phone calls overseas," Lydston says. "If you're already paying \$10 to the hotel for broadband, the calls are free over the soft-client. Plus, the quality is about as good as a

See IP softphone, page 28

Softphone options

Almost all PBX and IP PBX vendors offer softphone clients for their phone systems. (These include 3Com, Alcatel, Avaya, Cisco, Mitel, Nortel, Siemens, Shore Tel, Inter-Tel, Sphere, Toshiba and Zultys Technologies, among others.) Depending on what type of phone system is (or isn't) already installed, users have several options.

Traditional PBXs

Users of traditional PBXs can connect workers with softphone by:

- Installing an IP card such as an NIC for the PBX, supplied by the vendor which gives the phone switch an IP address on a LAN.
- Installing softphone clients (proprietary to the vendor) on laptops and PCs. (Remote users will require a VPN infrastructure to access the PBX's IP internal address.)
- Reconfiguring firewall settings, if necessary, to let all VoIP traffic through.

ID DRY

- No special hardware is required on IP PBXs.
- VPN software and hardware are required to access the phone system remotely.
- Firewall settings may have to be reconfigured to let all VoIP traffic through.

No PBX (client-based only)

- Download clients such as Skype, Vonage, SIPhone, Net2Phone, FreeWorldDialup, SipXphone and many others.
- Most clients support PC-to-PC calls for free with compatible SIP-based clients (except Skype, which is proprietary).
- Clients can be used internally or externally, since a peer-to-peer or an external VoIP infrastructure is used to control calls.
- Calling real public phone numbers could require gateway hardware or cost extra as a monthly service or minutes plan.
- Firewall settings may have to be reconfigured for all VoIP traffic to get through.

Windows and open source options

- Windows Communicator clients can act as softphones, running off a Live Communication Server on the back end.
- Asterisk, a free, downloadable open source IP PBX, has a softphone client and interoperates with standard Session Initiation Protocol-based softphones.

NetContinuum upgrades firewall box

BY TIM GREENE

NetContinuum is jacking up the power of its application firewall with a replacement appliance that adds deployment options less intrusive to customers' networks.

Called the NC-1100, the device replaces the NC-1000 hardware platform and increases performance tenfold compared with the NC-1000, the company says. NC-1100 sits between Web servers and the Internet, screening it, then passing it on or terminating it. As a proxy device, it terminates TCP, HTTP and SSL sessions. Before passing along data, it checks, among other things, whether session cookies are good, forms within applications work, and hidden files remain that way.

The device is used by the Atlanta Public

Schools to protect applications that are open to public use. The schools' annual audit showed that opening network firewall ports to allow this access was a security risk, so proxying with an application firewall became important, says Sam Pointer, the IT director for the schools. "Malicious traffic hits the NetContinuum [device] on a dummy address, and it stops it there," he says.

The device also can improve the response time of Web applications by caching, compressing, load balancing and pooling TCP sessions.

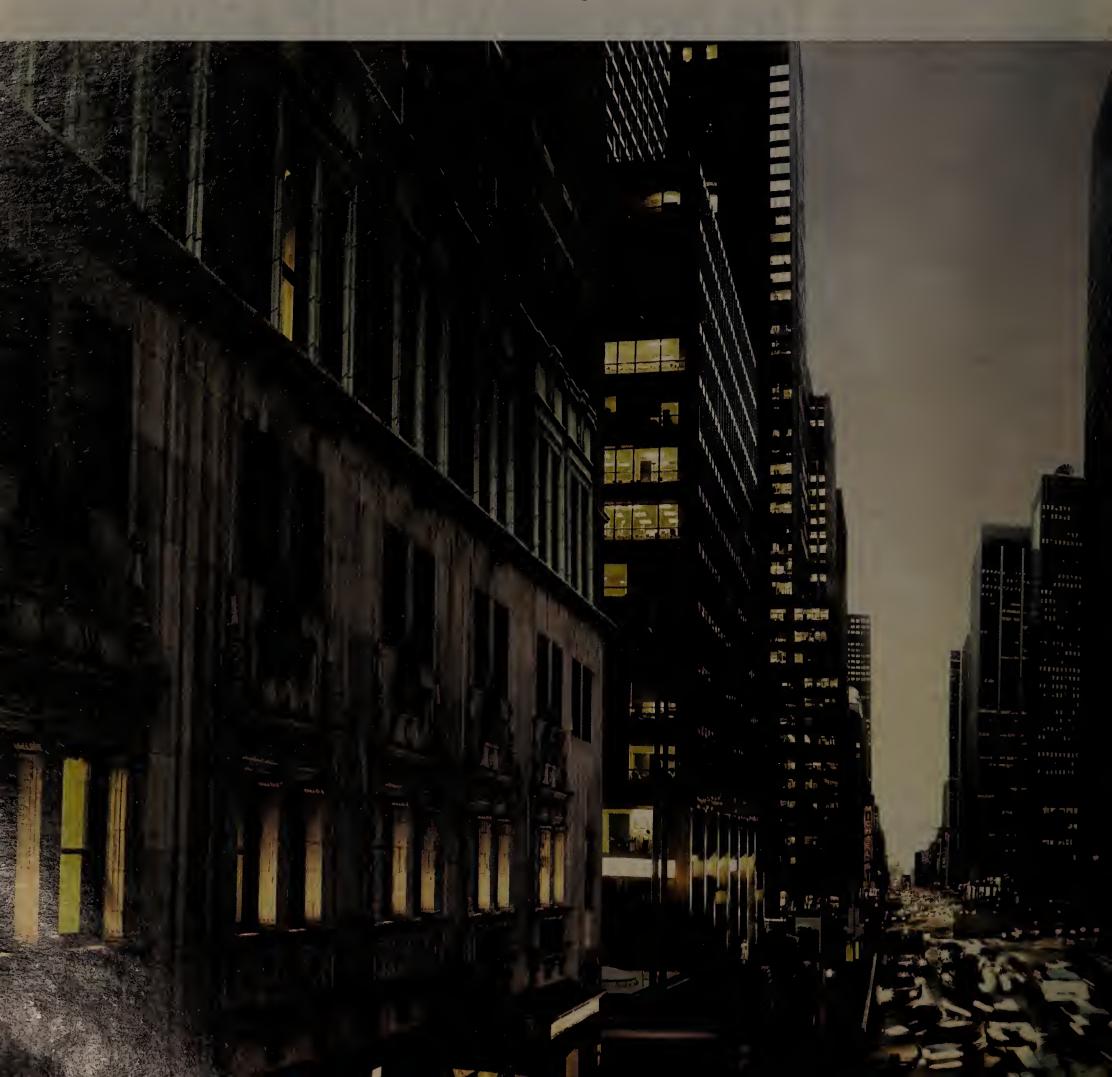
The company's claim of a tenfold performance increase is a bold one, and actual improvements may vary depending on the mix of traffic the NetContinuum device handles, says Michael Gavin, an analyst with Forrester Research.

Software upgrades with the new device enable deployments that don't require changes to DNS table entries, something that is generally required of reverse proxies, and that some vendors say makes customers shy away from reverse-proxy application firewalls. For instance, competitor Imperva uses as a selling point the fact that its network-layer device requires no network-address changes.

The NC-1100 can be deployed either inline with traffic, to block malicious packets and hide IP addresses, or off the monitoring port of a switch or router in bridge-proxy mode, to set a baseline for what nor-

See NetContinuum, page 28

A Global Hotel Company Analyzing 1.4 Million Records a Day. Running On Microsoft SQL Server 2005.



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SQL Server 2005



Mike Rothman

It seems that after my last Insider column, a lot of people think xenophobia is acceptable. This boggles my mind, but as I'm entitled to my opinion — as is everyone else — let's see whether I can't slay another sacred cow of

the new security thinking.

There is an adage from the early crypto days about the need for open comment on algorithms to make sure there are no obvious (or not obvious) holes before widespread deployment. This type of public scrutiny and open feedback has been extended to other security products with pretty good results. Some open

Obscurity vs. business reality

source technologies, such as Firefox, have better security architectures and also react faster to issues because more people understand the internals and as a result, can fix bugs.

In the view of some security folks, the opposite of open is obscure. The charge of security through obscurity has been leveled mostly at big companies that aren't enamored of security researchers publishing the vulnerabilities in their products until the problems have been patched and fixed.

But obscurity is not always a bad thing From the perspective of competitive intelligence and protecting intellectual property — which ultimately provides fuel for the next wave of innovation — sometimes obscurity is necessary.

I recently wrote on my blog that a vendor is perfectly justified in not selling equipment to organizations in which there is a chance the box would be used to provide competitive intelligence.

I heard from a vociferous few that my thinking violated the security-through-obscurity dictum. So let me clear that up. I am in agreement that obscurity is terrible when dealing with high-profile application vulnerabilities or new encryption algorithms. Hiding behind a veil of secrecy in those cases can be deadly. If a known vulnerability is not fixed, we could be visiting outbreak city.

But I am in disagreement about obscurity as it relates to maintaining differentiation. Competition in the security business is a fact of life. For every decent idea (and even many not-so-decent ones), there are four or five companies chasing it. Each of the emerging players will bring different things to the table. The ultimate winner in the emerging market has done the best job of figuring out the needs of early customers.

Giving competitors unfettered early access to a product virtually guarantees there will be no sustainable technical differentiation. It's bad enough that there is no marketing differentiation, which makes buying products hard for most users. But without technical differentiation, every product becomes an instant commodity. Given the current three to four years to obtain a patent, it's not as if you can depend on that system to protect innovations.

I do understand that regardless of best efforts, it's very hard to keep equipment out of the hands of competitors. You have unethical consultants and resellers who will purchase the product and give it to the competitor. But why should a company facilitate the situation?

Let's allow this instant-commodity theme to play out a bit. It's true that users may receive short-term benefit in the form of lower prices

for innovative technology. But the reality is differentiation creates value that funds the next wave of innovation. Getting in the way of that cycle will have a dramatic impact on future innovation. Less investment results in a distinct lack of innovation, which drives big-company monocultures to a controlling position.

Some would say we have a monoculture today, but I disagree. There is plenty of entrepreneurial ballast working hard to keep the big guys honest. It will be a bad thing if there is an economic disincentive for those folks. So as with everything else, there are no absolutes in this business.

Rothman is president and principal analyst of Security Incite, an analyst firm focusing on information security. Read his blog at http://feeds.feedburner.com/securityinciterants or send e-mail to mike.rothman@securityincite.com.

IP softphone

continued from page 25

cell phone's, and a lot of times, it's better."

Nissan North America also is gaining productivity and cost savings with soft-phones without having to go through an entire corporatewide VoIP upgrade, which could add cost and complexity, Lydston says. Softphone clients on laptops are configured to connect into one of several large PBXs. The clients tunnel into the corporate LAN with VPN links and access IP cards installed on the PBXs.

Overall, Lydston admits, the financial payback of softphones won't blow away the company's accountants. "It's more like found money," he says of the savings, which could run into the tens of thousands of dollars per month. "That's a drop in the bucket for a billion-dollar company like ours."

What keeps softphones from becoming a killer app in other companies seems to be like the proverbial death from a thousand paper cuts. Some of the many issues include complicated PC sound configurations, end users' dislike of headset devices, unfamiliarity with softphone interfaces and the awkwardness of talking to someone over a PC instead of a handset.

"Quite frankly [softphones] are more of a novelty than a real value-added type of application for us," says Phil Go, ClO for Bar-

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ton Marlow, a Chicago construction firm.

VolP is a mature technology at Barton Marlow, which installed a Cisco Call-Manager IP PBX and more than 200 IP phones four years ago. Go can rattle off dozens of benefits that IP telephony has made for his company, but softphones are not high on the list.

There is no such thing as making a quick call with a Cisco softphone client, he says. A user's laptop must first boot up, and then the correct PC audio settings must be configured. The VPN client must log into the network to connect with the Cisco Call-Manager. Carrying around a headset is another negative.

"End users sometimes have a hard time with all this stuff," Go says. "Plus, cell phones are so cheap these days, and it's so much easier and faster to pick up your phone wherever you are and make a call."

Perhaps the brand most known for bringing softphone technology to the mainstream is Skype. The little European start-up, purchased by eBay last year for \$2 billion, has an installed base of 9 million users. Recently, the company launched a small-business VoIP service for organizations with fewer than 10 users.

Skype is used widely at Dickinson College in Carlisle, Pa., where IT staff has found interesting ways to use the technology.

The college's IT department made Skype part of its standard PC and laptop software image distributed to computers for staff, faculty and students.

"We have a lot of offices abroad, with people doing research who can use Skype

even if they don't have phone service," says Todd Bryant, language program administrator for the college's academic technology division. "The IT staff likes it because they can send quick messages [via instant message] and share files as well."

Skype is a natural fit for the college's languages department, where Skype conversations are set up between Dickinson students studying French, German, Italian, Russian or Spanish and native speakers from those countries who are at a similar level in studying English.

"Language students can make a [Skype

connection] from our PC lab and get bandwidth priority," Bryant says. "And if students want to record the conversations for credit, we have software for that, too."

What makes Skype so useful is its simplicity. "We started to try to do this before Skype came around," Bryant says. "But it's so far ahead of other applications, especially in getting through unpredictable firewall or [network address translation] configurations. If you're calling up a random class somewhere that might not have good IT support, that's where Skype has a big advantage."

NetContinuum

continued from page 25

mal traffic looks like. The device also can be set to do a hybrid mode, in which some applications are bridged and some proxied. This mode might be attractive to businesses that want high security for certain transactions but less for others, Gavin says.

The appliance can be set in passive mode, in which it logs traffic and notes policy violations without dropping the traffic. That mode can be used to determine whether policies as set permit all the legitimate traffic. For example, a policy may allow access only from a certain subnet. If a particular authorized user is in a different subnet or moves around, however, an administrator could set an exception for that user.

New software also gives customers an application dashboard, which shows the

status of each application — whether it's working, how much bandwidth it is using, how many transactions per second it's performing and the attacks it is subject to.

The NC-1100 can be deployed in pairs, with the standby constantly testing access to applications via the primary box, maintaining state with the primary box and jumping in if access to applications fail.

The new device also comes with software wizards for defining and setting security options for applications. By default the machine sets the security parameters suggested in the Web Application Firewall Evaluation Criteria, established by a group of application firewall vendors.

NC-1100 is expected to be available in May in two models. The AF version, which includes just an application firewall, costs \$30,000; the AG, which also accelerates traffic, costs \$35,000. For an additional \$10,000, the devices can support XML. ■

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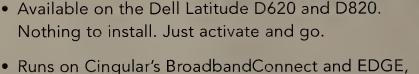






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Marathon eyes a wider server market

BY JENNIFER MEARS

As director of technical systems for the radiation medicine program at Princess Margaret Hospital in Toronto, Terry Michaelson is intimately familiar with the idea of fault tolerance.

"The radiation medicine program at Princess Margaret is one of the largest in the world and one of the most advanced," he says. "We need systems that give us maximum uptime....There are a lot of moving parts in a radiation therapy treatment, and you want the session to continue. In case of a failure, you don't want the session to

To get that kind of reliability, Michaelson brought in servers from Marathon Technologies. Five years after acquiring those systems, Michaelson is upgrading his hardware to support updates to his application package and plans to take advantage of new high-availability software from Marathon.

EverRun HA, introduced last week, is the third product from Marathon since it emerged from bankruptcy protection and reinvented itself as a software company in 2004. EverRun HA creates highly available environments for Windows applications and supports a range of industry-standard hardware platforms.

EverRun HA offers more flexibility for the underlying hardware than Marathon's first software product, EverRun FT, which was introduced as FTvirtual Server in 2004. The third product Marathon introduced is EverRun SplitSite, which provides for business continuity by enabling a pair of servers to be as much as 100 miles apart.

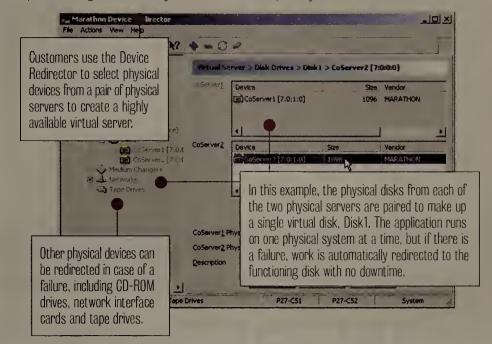
Both EverRun HA and EverRun FT use a virtualization layer so that a pair of servers presents itself as a single system with one IP address. EverRun FT, however, provides true fault tolerance with two physical servers operating in lockstep.

EverRun HA, on the other hand, provides high availability with the applica-

See Marathon, page 32

Redirection

Marathon Technologies' EverRun HA product virtualizes Windows applications to provide high availability without the complexity of clusters.



Short Take

■ Microsoft last week released the first service pack for SQL Server 2005, which includes database mirroring and a new management tool for SQL Server Studio Express, and feature options for the free lightweight database. The mirroring capability transfers transaction log records directly between servers so the database can fail over quickly to the standby server. Included is better integration between SQL Server Reporting Services and SAP NetWeaver Business Intelligence. For the SQL Server Studio Express version, users now have the option to include SQL Server Management Studio Express, Reporting Services and Full-text Search with Studio Express. Microsoft also reaffirmed a beta release this summer of SQL Server Everywhere Edition, which provides a lightweight data store for client machines.

Start-up's software classifies data types

BY DENI CONNOR

Storage start-up Scentric last week rolled out software that identifies, classifies and manages information on networks for regulatory and evidentiary compliance, and storage consolidation.

Called Destiny, the software discovers and indexes all types of data — files, database and e-mail — and lets storage administrators classify and manage it using rules and searches they set. It can discover data stored on Windows file servers, network-attached storage devices and storage connected to a NAS gateway. Scentric says Destiny differs from soft-

ware-based appliances from Kazeon, StorelO and Arkivio in that it discovers and classifies all types of data, not just one type.

"Scentric's technology is the first ICM [identification, classification and management] tool aimed at providing a common policy control across all data types — databases, e-mail and file content," says Brad O'Neill, senior analyst with the Taneja Group. "This differs from the first-generation ICM tools we saw hitting the market in the past year that have been almost exclusively focused on file content."

Scentric's Destiny uses a distributedindexing approach. Software resides on one or several Windows servers in a network, allowing scalability and flexible deployment.

O'Neill says that the market for software and appliances of this type is expected to grow as large storage-systems manufacturers, such as EMC, define their strategies.

"Most storage providers have already moved beyond viewing policy controls as optional," O'Neill says. "It's generally accepted now that you cannot build an intelligent storage architecture without investing some functionality in classification and policy controls."

Scentric was founded in August 2004 by CEO Sanjay Seghaln, formerly of iVivity, and CTO Hermant Kurande, co-founder of

The company says that a version of Destiny that works with Linux and Unix file servers and NAS appliances, as well as with Oracle databases, will be available by the end of the year. Pricing was not disclosed.

Profile: Scentric

Type of software: Data-classification software called Destiny.

Alpharetta, Ga. Location:

Founders: Sanjay Seghal, CEO, formerly founder of iVivity; Hemant Kurande, CTO, formerly

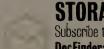
CTO and co-founder of Storability.

August 2004 Founded:

\$10.4 million from HIG Ventures, Valhalla Partners. **Funding:**

Company name from "storage-centric"; founders would have preferred "data-Fun fact:

centric." but Dcentric didn't sound good.



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Marathon

continued from page 31

er, while a second server connected by Gigabit Ethernet stands at the ready to pick up the slack should a failure occur. The servers do not have to be identical. EverRun HA is more scalable and can run on systems with more than two processors, the limit for EverRun FT.

With greater reliability, EverRun FT is priced at \$16,000, while EverRun HA starts at \$7,500. Marathon executives say the lower-priced, more-flexible EverRun HA will help them bring high availability to a wider audience. Analysts agree.

"The HA product is a way Marathon can sell a subset of the functionality of [EverRun FT] for less money," says Gordon Haff, an analyst with Illuminata. "That way they can reach out to a wider group of customers."

Marathon introduced its soft-

ware as a way to provide high availability and fault tolerance for Windows applications without requiring operating system or application modification. The software competes primarily with clustering software, which often requires complex management, including application modification to make sure workloads are cluster-aware.

"EverRun HA takes a clustering approach but works somewhat differently," Haff says. "The HA product is intended to be a more-transparent form of clustering with similar benefits and similar availability to clustering.

"The idea is that there are fewer application dependencies, because the applications themselves don't need to know that they are failing-over their services."



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Microsoft patch service due

BY ROBERT MCMILLAN, IDG NEWS SERVICE

Microsoft plans to give customers a peek at the next version of its Windows Server Update Services software at the Microsoft Management Summit conference in San Diego this week.

Windows Server Update Services (WSUS) 3.0, which is expected to be released in the first half of 2007, will include a more dynamic user interface based on the Microsoft Management Console (MMC) framework and will have several features designed to make the software easier to use, says Joseph Dadzie, a Microsoft group program manager.

WSUS is a free alternative to Microsoft's Systems Management Server (SMS) product that gives customers a way to control the deployment of Microsoft patches and security updates. It will be shown in public for the first time at the systems-management conference April 27.

The new MMC-based interface will give customers an improved view of how their patch deployments are rolling out and will allow them to roll reports from a variety of different servers into one root server, Dadzie says.

Version 3.0 will introduce the notion of "nested target groups," which will allow customers to set patch policies for one group of computers — servers, for example — and then fine-tune those policies for a subset of that group, such as Exchange servers.

Microsoft also plans to streamline the way WSUS detects whether the systems it manages require software updates.

WSUS 3.0 has been available in a "small focused beta" since January. A more widespread beta 2 release of the product is scheduled for the second half of this year, Dadzie says. Also set for the last half of the year is a service-pack update to WSUS 2.0, which will include support for Microsoft's upcoming Windows Vista operating system.

The WSUS software is useful to a limited group of Microsoft users who want more control of their software updates than they get from the automatic update service that ships with Windows and who are unwilling to pay for Microsoft's SMS, says Peter Pawlak, a senior analyst with the research firm Directions on Microsoft.

"For any company that has a few IT people and more than 50 or 100 computers, it isn't that overwhelming to install and manage SMS," Pawlak says. "And if you're real small, you're probably just going to install automatic updates."

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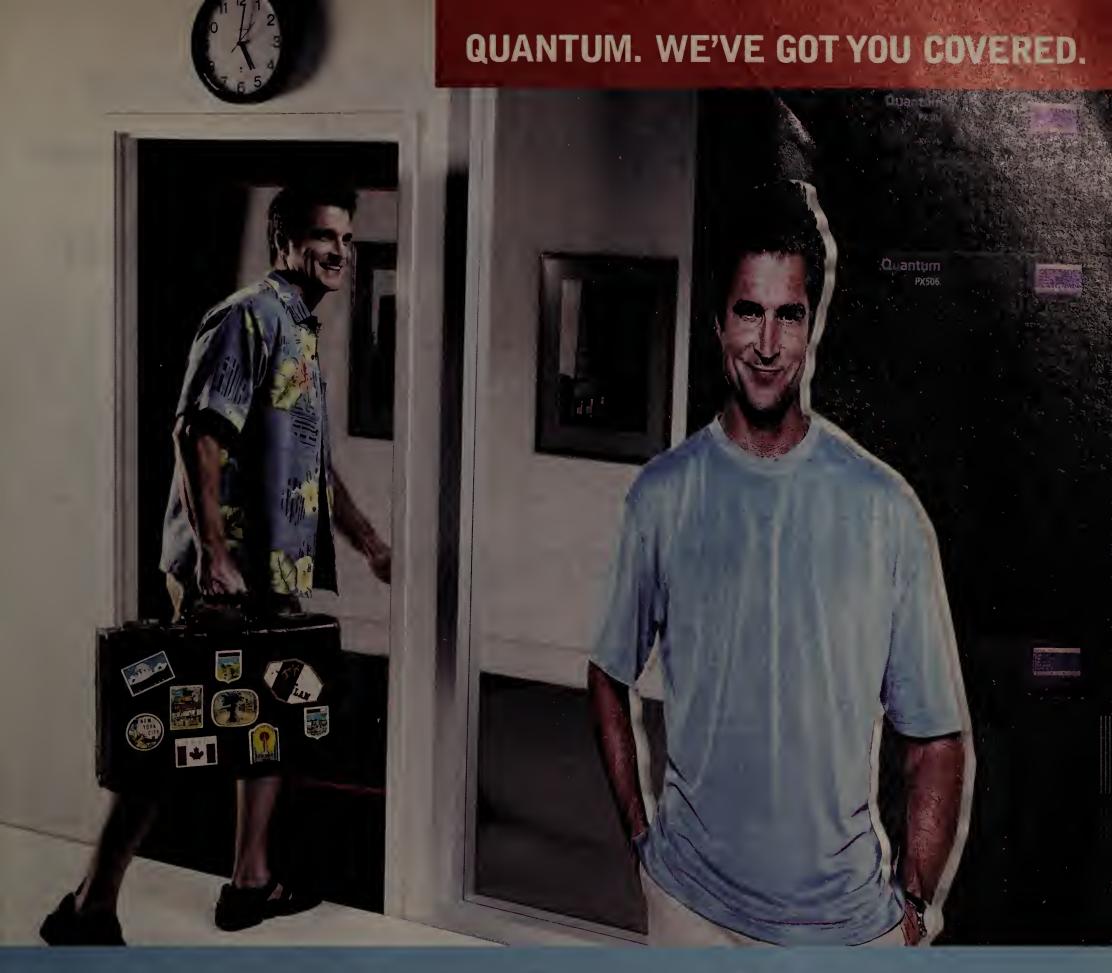
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Marshal sets up spyware protection

BY CARA GARRETSON

Marshal, a U.K.-based company that NetlQ acquired in 2002 and sold back in a management buyout three years later, plans to announce this week the first round of upgrades to its e-mail and Web security software since regaining control of those products.

MailMarshal SMTP 2006 and WebMarshal 2006 are on their sixth iteration; they have been around since Marshal was conceived in 1997 in New Zealand, according to Ed

Macnair, the company's CEO. Included in the upgrades are new features that keep spyware from entering an organization by detecting it at the gateway instead of the desktop, Macnair says. MailMarshal SMTP 2006 also has a new feature that detects from where an e-mail message was sent, which helps determine whether the message is spam.

Marshal competes with gateway e-mail security software makers, including Mirapoint, Proofpoint and Symantec, as well as Web-filtering companies WebSense and SurfControl.

System-management company NetlQ purchased Marshal in 2002 in an attempt to move into the emerging market of e-mail security and content filtering. The convergence of system-management and security products did not catch on to the extent that NetlQ had predicted, according to Macnair. That, coupled with mismatched distribution strategies - NetlQ sells directly to corporations, while Marshal goes through

third-party channels — meant the Marshal products didn't thrive under the NetlQ name. In NetlQ's fiscal year, ending June 2005, Marshal products — MailMarshal, WebMarshal, Security Reporting Center and Firewall Suite — generated only 8% of the company's total revenue.

Some customers noticed the lack of attention paid to Marshal products under NetlQ's ownership. About six months ago, Brisbane Girls Grammar School in Aus-

See Marshal, page 35

Zenprise beefs up Exchange mgmt. platform

BY JOHN FONTANA

Exchange management vendor Zenprise this week is scheduled to add discovery and diagnostic tools to its namesake server for Microsoft's e-mail platform.

The company has added self-healing capabilities to Zenprise 2.0 that ensure the server stays up and running. Version 2.0 includes support for clustered Exchange environments, technical information from O'Reilly Media and enhanced predictive capabilities to identify symptoms that could lead to server problems.

"With the clustering features we can distinguish between the virtual server and the real servers," says Paul Hinsberg, senior server engineer for the County of Alameda in Oakland, Calif. The county runs two clusters and may deploy a third to help service its 8,400 mailboxes. When Zenprise is installed it recognizes the active and passive nodes in a cluster, and in the event of a failover automatically begins monitoring

the new server. "Before, we had to figure out which one the server was running on and if the problem was with one server or both. Now we can actually see where our problem is located," Hinsberg says.

Zenprise works by collecting information from throughout Exchange's messaging environment - global catalogs, do-

main controllers, DNS servers and Active Directory — to pinpoint the underlying cause of a problem or ferret out potential problems. After a problem is deciphered, Zenprise specifies a resolution customized for the user's environment. Zenprise has expanded those capabilities in Version 2.0 to detect problems that affect users, for example, preventing them from sending or receiving e-mail or resulting in sluggish performance of calendars.

At the heart of the Zenprise software are three algorithms. The correlation algorithm takes related symptoms and groups them together. The causation algorithm includes a set of automated tests that determine the root cause of a problem, and the correction algorithm provides detailed, step-by-step resolution instructions.

Finding problems

In more than one-half of

organizations, e-mail man-

agers find out about e-mail

server problems from their

users, not from any sort of

monitoring package, accord-

ing to a survey by Osterman

Research.

Zenprise includes a symptoms database that houses all known Exchange symptoms and associated causes. The database works much like anti-virus software in that it is updated regularly using data gleaned from the local system, from other Zenprise

customers and from

Microsoft.

With Version 2.0, Zenprise includes technical information from publisher O'Reilly Media. The company has encoded O'Reilly's library of Exchange books into the server. When an error condition is detected that matches information from an O'Reilly source, Zenprise will pro-

vide a reference to the book's title, along with partial information that suggests a solution, and a link to the O'Reilly site.

Zenprise also has taken the self-healing features of its platform and turned them on its own software. "By announcing this capability, we are saying your administrator does not need to be a Zenprise expert in order to troubleshoot our software," says Ahmed Datoo, vice president of marketing.

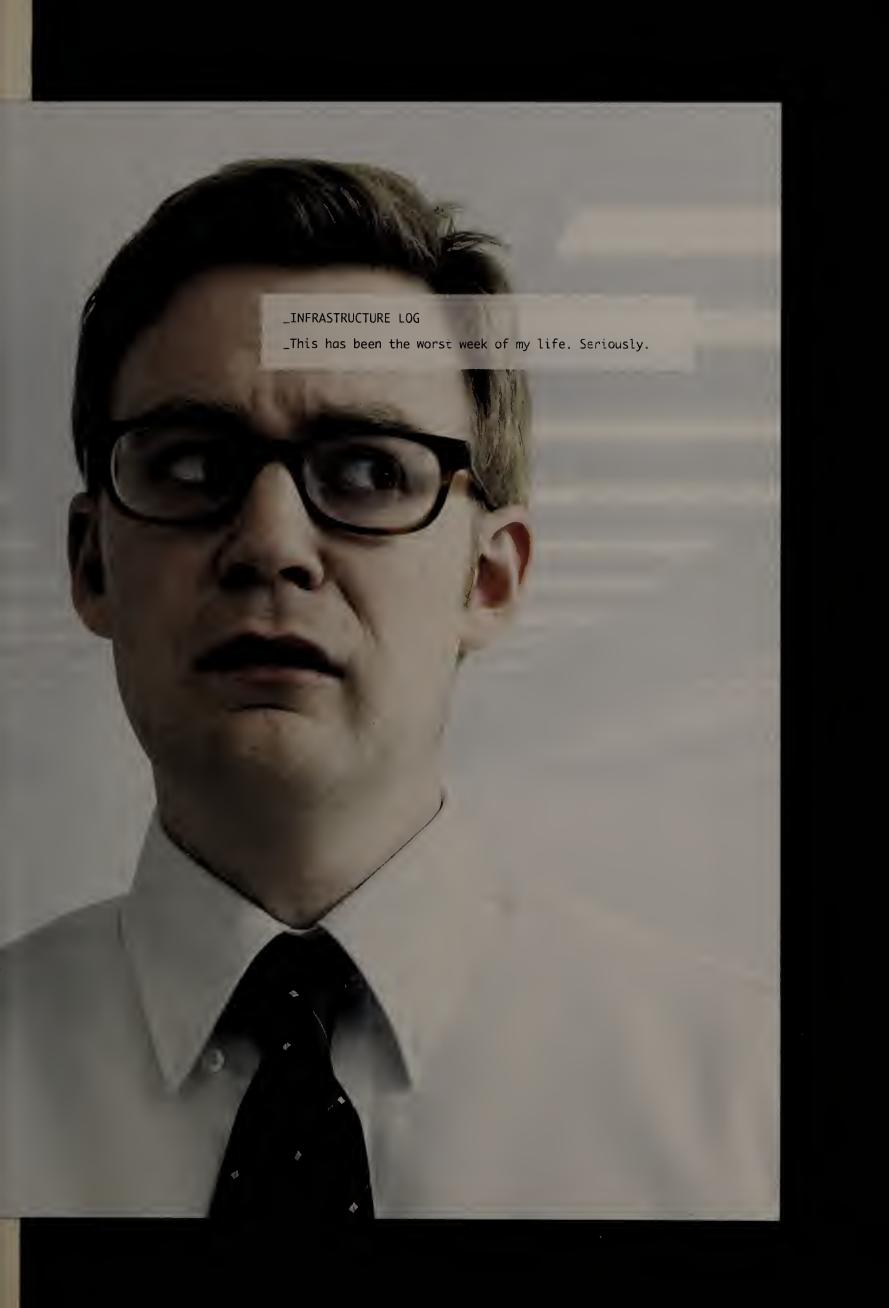
Zenprise competes with similar products from EMC, Lucid8 and Micromuse, and integrates with monitoring products such as CA Unicenter, HP OpenView, IBM Tivoli, Microsoft Operations Manager and NetlQ's AppManager.

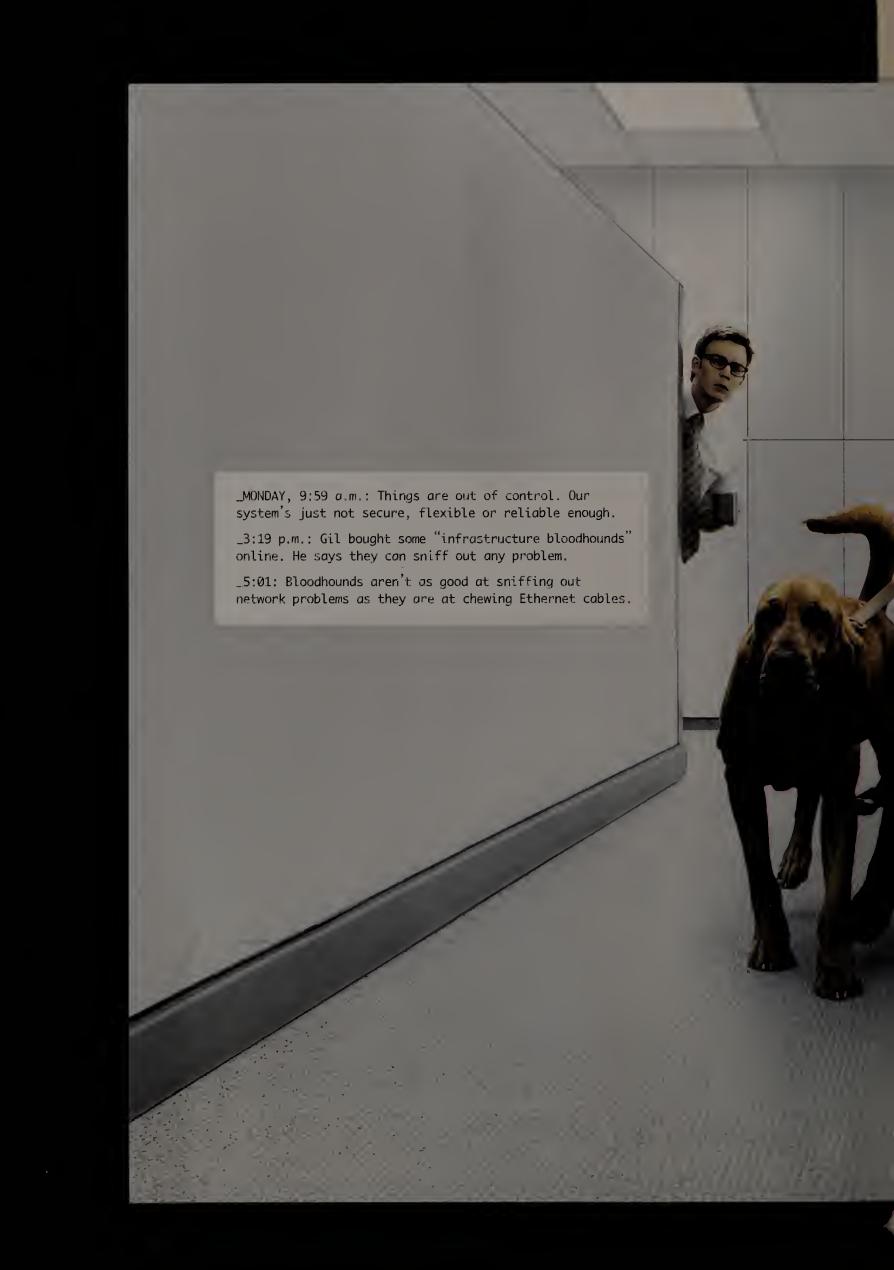
Zenprise 2.0's pricing starts at \$15 per user for 1,000 users.

Short Takes

■ Virtualization software start-up Cassatt last week launched software to help manage virtual machines from EMC subsidiary VMware, Microsoft and the Xen open source project. As businesses look to virtualization to consolidate applications on fewer servers, the need to respond quickly to failures and network-traffic spikes becomes more critical, Cassatt said. Cassatt's Collage Cross-Virtualization Manager is designed to automate software deployment and response to spikes and failures on virtual and physical servers. Collage XVM sits on top of Cassatt's Collage software platform, which creates a virtual pool of application resources and matches up applications to resources based on service-level agreements. The XVM software costs \$1,250 per physical node. Pricing for the Collage platform starts at \$100,000 for a 40 node environment.

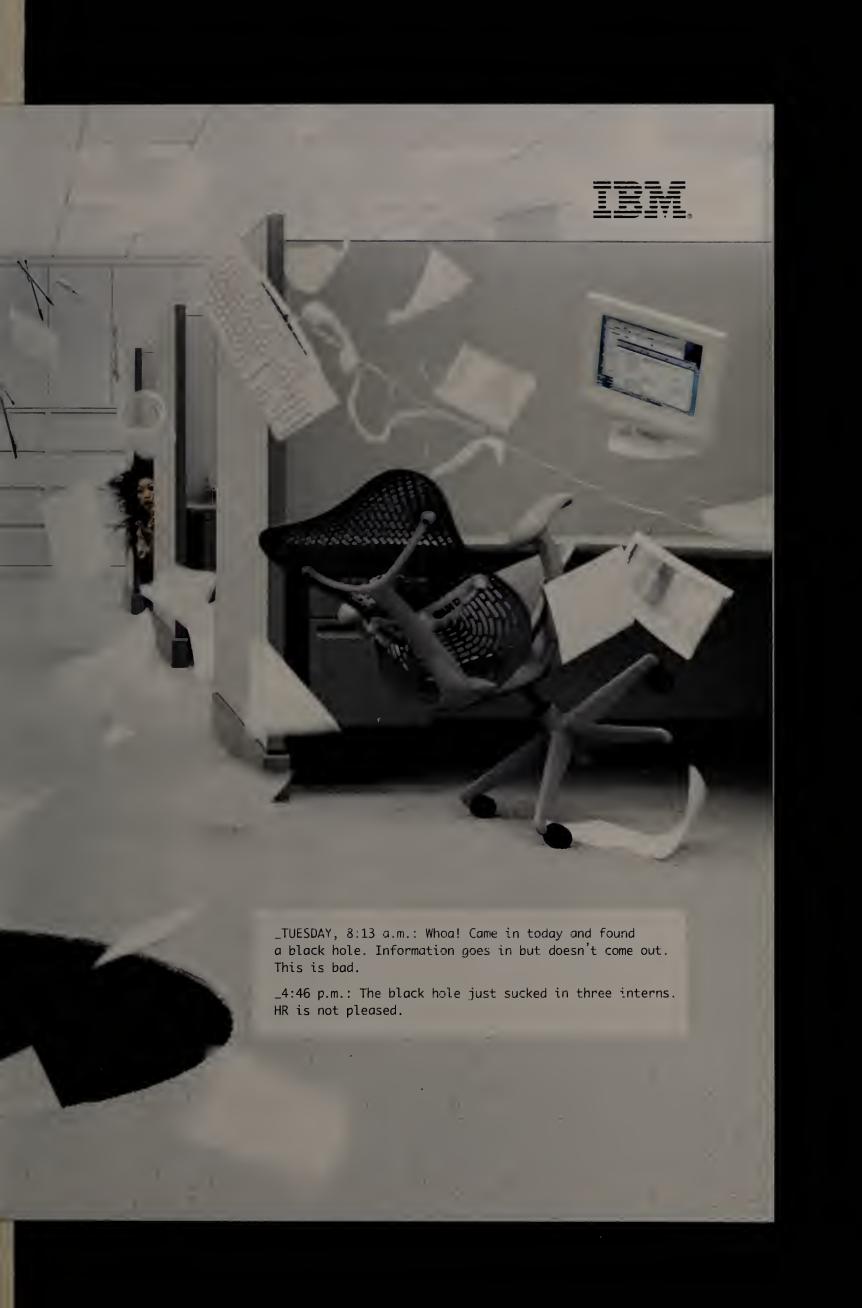
■ Microsoft has initiated a program to push its software into the healthcare industry, the company announced at the World Health Care Congress last week. Microsoft said 22 other software vendors and healthcare companies are backing Knowledge Driven Health Plans, an initiative it says aims to improve service and decrease costs. The goal, Microsoft said, is to let different healthcare organizations exchange information across disparate IT systems. The move is not unlike efforts in many other industries that seek IT systems to share information more easily. Knowledge Driven Health Plans is focused on Microsoft products and technologies, such as .Net 2.0, BizTalk Server, the Windows Server System, SQL Server and Microsoft Office 2007. The 22 partners include HP, Infosys and Tata.











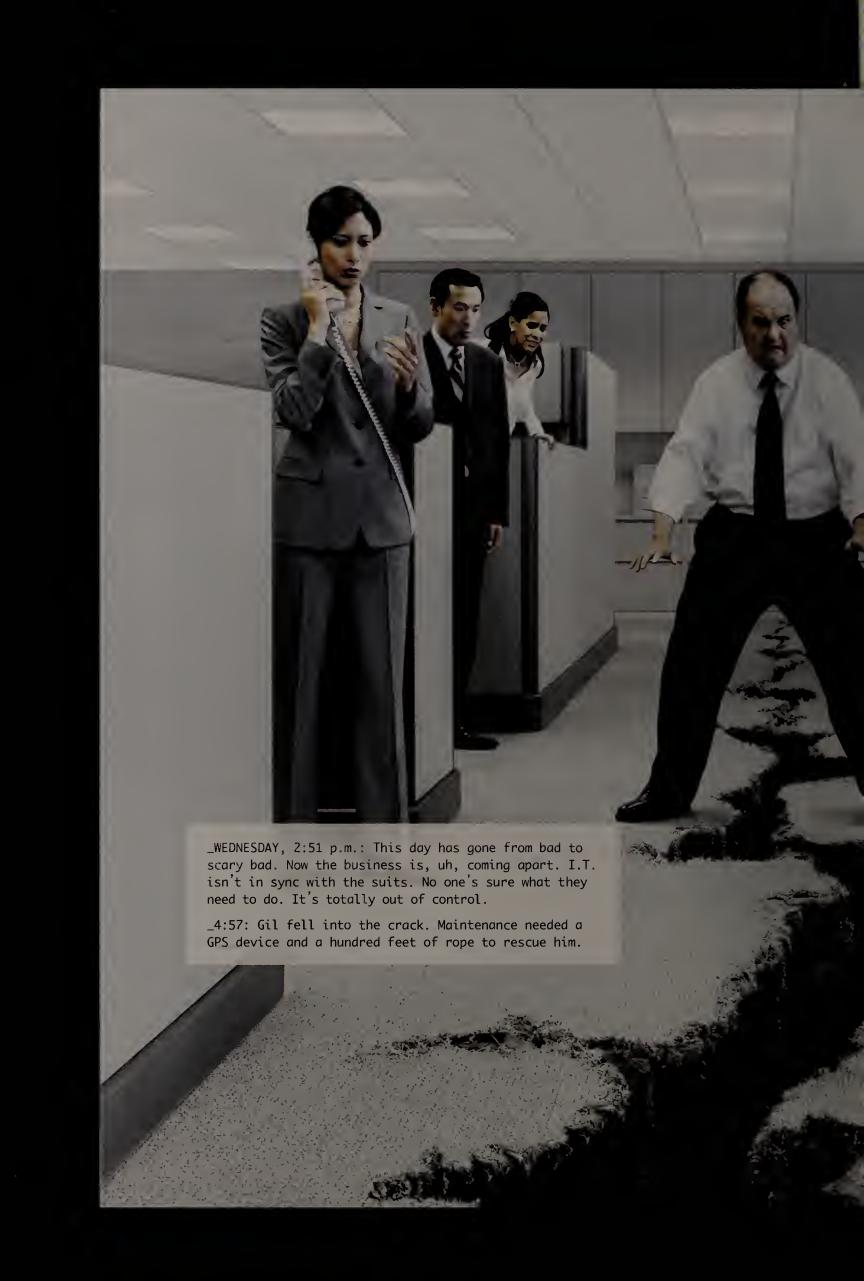
_WEDNESDAY, 9:45 a.m.: Arghh! We're so slow. It takes people forever to access...everything. No one can collaborate, no one can make smart decisions quickly enough. There's got to be a better way.

_12:22 p.m.: Gil says he's found one: aerodynamic bodysuits. He says everyone will be able to work faster and collaborate better now.



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_THURSDAY, 11:02 a.m.: I give up. Our infrastructure is so inflexible. Our apps and processes don't work together. We can't respond quickly to change. It's out of control.

_11:42: Gil had an epiphany. Duct tape. A few dozen rolls later and he's integrated everything, and everyone, by hand.

_11:45: Duct tape can fix many things. Basketballs. Sofas. Doorknobs. But not widespread app and process inflexibility.





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NET INSIDER
Scott Bradner

A package showed up on my desk the other day from the National Emergency Number Association. It contained three copies of the association's new publication on positioning E911 or an IP-enabled future. The NENA publication is more — or ess — than I expected, both for good and bad.

E911 has been around the wireine world for many years. When you dial 911, your call is directed to a Public Safety Answering Point (PSAP), where the number you called from is looked up in a database maintained by the phone company that associates who numbers with the physical location of the end of the

E911 plans fail to impress

phone wire. It is the responsibility of the phone company to figure out which PSAP out of the 7,666 listed by the FCC (www.nwdocfinder.com/3052) to connect the caller to. A significant percentage of U.S. wireline phone customers are covered by E911 and are paying a monthly fee (mine is 85 cents) to support it.

Note that in most cases, if your company runs its own PBX, the physical location of its phones will not be in the database, so the PSAP will not know where you are unless you are able to tell them

E911 for the 185 million U.S. cell phone users (www.nwdocfinder. com/3053) is a rather different story. The FCC started asking cell phone carriers to support E911 in 1996, but to date only 10 of 390 wireless carriers have complied. The FCC has granted, in whole or in part, 173 of 184 requests by car-

riers to delay the deadline (www. nwdocfinder.com/3054).

Compare this with the 120 days the FCC gave VoIP carriers to meet the same standard for their 3 million customers (www.nwdocfinder.com/3055). Note that wireless and VoIP E911 are a lot harder to do. Because there can't be a database of where mobile callers might happen to be when they call 911, other methods to determine a caller's location must be developed.

NENA's initial findings and recommendates of more of a to it of nores (www.nwdocfinder.com/3056) address the future basic structure of emergency communications and are not limited to E911. The structure they describe comes from a December 2005 report of a National Reliability and Interoperability Council (www.nric.org) focus group titled "Communication Issues for

Emergency Communications Beyond E911" (www.nwdocfinder.com/3057). (I participated in a number of the phone calls of this focus group but do not claim to be responsible for the design, even though I think it's a good one.)

The NENA publication does change the emphasis in one area. The NRIC focus group report says a number of times the group "does not believe a new physical network is needed," and existing and new data networks "should be organized in a distributed, not a hierarchical, architecture embracing a multiplicity of communications pathways and methods based on the Internet model."

The NENA publication talks about "a hierarchy of interconnected local, regional and national IP networks that would enable [next-generation 911] and many other emergency com-

munications applications." The report basically calls for the creation of an "emergency services IP network" rather than use existing facilities wherever possible as the report from the NRIC focus group does. Looking at the list of NENA "program partners," one can see why the idea of governments spending lots of money on new networks might be seen as a good idea.

There is a lot of good information in the NENA publication, even if you are not an equipment or services vendor, but clearly some people think that feathering one's own nest while protecting public safety is just common sense.

Disclaimer: Some people have claimed that "Harvard" and "common sense" should not be used together, but I did not ask the university about the above observations so am expressing my own opinion.

Microsoft pushes security, Sender ID for e-mail

BY ELIZABETH MONTALBANO, IDG NEWS
SERVICE

Microsoft said last week it plans to promote adoption of the Sender ID e-mail specification and introduce a new program for helping customers protect the integrity of e-mail messages.

Citing research figures from Mark-Monitor, Craig Spiezle, director of technology care and safety for Microsoft, said that the use of Sender ID among Fortune 500 companies increased from 7% in July 2005 to 21% today. About 32% of all e-mail sent is Sender ID-compliant, Spiezle added.

Sender ID was developed by Microsoft, SendMail and other companies as a type of caller ID system for e-mail messages, he said. The IETF is working to develop the Sender ID specification, the first draft of which was released in June 2004.

Sender ID lets companies attach information to an Internet domain that tells email recipients what addresses are authorized to send mail from that domain, Spiezle said. This lets the system receiving the message recognize whether it is legitimate or being spoofed by another domain, he said.

Once companies adopt the Sender ID protocol, they can gather information about which e-mail addresses are legitimate and which are not, and create better

filtering for their inbound e-mail systems, Spiezle said. They also can decide to block e-mail from legitimate addresses that are not useful to them.

"The first [phase] was getting systems in place to check the validity if the mail has been spoofed or not," he said. "Then you can build reputations based on what users are saying and apply that to overall scoring of the mail."

MSN Postmaster Services is aimed at helping with this second phase. The program provides information, best practices and tools for helping ISPs better manage their e-mail infrastructure for serving MSN and Windows Live mail users, Microsoft said.

It also offers Smart Network Data Services, which provides reports on how well MSN and Windows Live Mail e-mail filters are processing messages. This tool can be used to find and stop computers that are sending spam, the company said.

Another feature of MSN Postmaster Services is a detailed overview of the MSN and Windows Live Mail junk-mail filtering processes and guidelines to help improve how well organizations deliver to MSN Hotmail and Windows Live users, the company said.

MSN Postmaster Services is free and available only in English, though Microsoft

Security due

Marshal plans to announce this week upgrades to two gateway security software products:

Product	New features	Availability	Price
MailMarshal SMTP 2006	Blocks e-mail based on country of origin; protects from directory harvest and denial-of-service attacks.	Now	Starts at \$750 for 25 users
WebMarshal 2006	Blocks spyware; blocks users from visiting known phishing sites; has anti-virus features.	June	Starts at \$750 for 25 users

Marshal

continued from page 34

tralia, which has 1,300 e-mail users, moved from MailMarshal to Symantec messaging security gateway products.

"We were finding that [MailMarshal] was creating too many false positives, and a significant number of legitimate e-mails were getting blocked," says Nathan Pilgrim, the school's manager of IT infrastructure and communications.

"We felt that the development of the product was not keeping abreast of the new email-borne attacks and was therefore unable to protect our organization from them," Pilgrim adds.

Marshal is now out to change that. In December 2005, Macnair led a management buyout of the Marshal products, supported by U.K. private equity firm Kelso Place Asset Management. The company rehired about 80% of its old development team, as well as the two original founders, and plans to employ nearly 100 before the

end of May, Macnair says.

MailMarshal SMTP 2006 catches spam and viruses at the gateway and includes a new feature called CountrySensor, which determines the country from which an e-mail message originated, says Macnair. Users factor in the information about country of origin when determining whether a message is spam, he says — or if the message comes from a country with which the company doesn't normally do business, block it altogether.

This version includes new protection against directory harvest and denial-of-service attacks, Macnair says, and detects spyware at the gateway by inspecting inbound attachments for unauthorized ave files

WebMarshal 2006 includes the same anti-spyware technology and the same anti-virus feature set as MailMarshal SMTP 2006, and provides content analysis and URL filtering. Later this year, Marshal plans to release instant-messaging security software. ■



Benefits Innovations Solutions

The U.S. Federal Government has mandated the adoption of the New Internet (Internet Protocol version 6, or IPv6), the massive upgrade of the existing IPv4 standard, in use since 1973. The transition to IPv6 offers major opportunities — and challenges — for every Federal department, which will be identified and discussed by experts in this unique conference.

The Federal IPv6 Summit will feature senior political and military leaders, IT organization executives, ISPs and first responders — who will identify their visions of how the government will benefit from IPv6, how this transition will take place, and what roles industry should pursue.

This is a must-attend event, especially for those working for or in support of the US Federal government.



Alex Lightman Chairman, Federal IPv6 Summit 2006

There will also be demonstrations of new IPv6 applications, including up-to-the- minute reports on the first IPv6/WLAN city in America!

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- Dr. John McManus, CTO, NASA
- General Dennis Reimer (Ret.) Fmr. Chief of Staff, US Army
- Tim Schmidt, CTO, Dep. Of Transportation
- Matt Walton, Chairman, Emergency Interoperability Consortium
- Mark Bayliss, CEO, Visual Link Admiral
- Tim Keating, Cdr., NORTHCOM (invited)
- Hon. John Warner, US Senator (invited)

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Softricity spotlights virtualized applications

Virtual savings

Alamance Regional Medical

Center, with 300 Citrix thin

clients and more than 900

desktops, estimates it has

saved nearly

\$348,000

since deploying Softricity's

application virtualization

software in August.

BY JENNIFER MEARS

Softricity is expected to release this week the latest version of SoftGrid, application virtualization software that is aimed at reducing the work associated with managing Windows PCs by turning desktop applications into virtual services that can be delivered over a network.

SoftGrid packages traditional desktop applications into data files that can be centrally managed, then deployed on

client devices as appropriate. With SoftGrid, applications are not installed on a client, meaning that customers do not have to worry about application conflicts or operating system glitches, Softricity executives say.

"Instead of people pushing out applications, or installing applications or having to test applications, we're treating applications like Web

pages that can be delivered on demand," says David Greschler, a co-founder and vice president of marketing at Softricity.

SoftGrid 4.0 adds a number of updates that are designed to make virtualizing desktop applications easier, Greschler says. Those updates include new automated tools for virtualizing applications; remote management of SoftGrid client devices; active upgrades, where applications on the server can be updated or patched without affecting users; integration with Microsoft Systems Management Server software so that users can virtualize and stream applications from within SMS; and support for virtual machines from VMware and Microsoft.

Because Softricity focuses on the application level, it competes with vendors like Altiris that provide products to manage client applications centrally as part of a broader move toward a service-oriented architecture, analysts say.

"Virtualization has become mainstream because of what you can do with [server] platforms," says Dana Gardner, principal analyst at Interarbor Solutions. "Now that people understand the overall benefits of virtualization, they can take the concept a step higher and start virtualizing applications, particularly as they start thinking about things like service-oriented architectures, which are going to require them to take a more holistic, enterprisewide approach to how they build and distribute applications."

Softricity also competes with vendors such as Citrix, with its application isolation environment. For Andy Gerringer, senior network administrator at Alamance Regional Medical Center in Burlington, N.C., Citrix's product wasn't able to solve his problems with Java-based application conflicts, because the applications were still required to be installed on the Citrix server.

"One week we had three upgrades, and

each required a separate version of Java. So we said, 'OK, do we continue creating these Citrix silos or do we do something about it," he says. "That's when we started with a pilot of SoftGrid, and we immediately saw the benefits and we rolled it out."

Gerringer says he is in the process of migrating some 900 desktops to SoftGrid.

"We're in the planning

stages of getting all those locally installed applications on all those PCs converted over to where we can just give them a PC with an operating system," he says. "All their applications would then be available [remotely]."

Gerringer says he's seeing significant savings with SoftGrid.

"I'm able to take an application that normally would need a test server, a few test users just to get it up and running to make sure it's not going to break something else, and now I can literally sequence [virtualize] the application and make it available," he says. "As long as the application launches, you know it's not going to have a problem. It's totally isolated and it's just not a problem."

SoftGrid 4.0 is available for free to current SoftGrid customers with a maintenance contract. It costs \$200 per user for new customers, although volume discounts apply.

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INTEREXCHANGES AND LOCAL CARRIERS III WIRELESS III REGULATORY AFFAIRS

EYE ON THE CARRIER Johna Till Johnson



In case you haven't noticed, the transition to MPLS-based services is in full swing.

In a recent Nemertes benchmark, 42% of participants reported using MPLS, up from 24% in 2004, with another 9% planning to deploy MPLS-based services within the next 12 months. That's at the expense of legacy technologies, such as frame relay (which dropped from 78% deployment in 2004 to 46% today) and ATM.

Why? MPLS-based services offer a host of benefits. For one thing, they're generally less expensive than most alternatives — carriers are pricing MPLS-based services at 10% to 25% lower than what existing data services cost. Another primary benefit is the ability to provide QoS-based support for converged voice and data services. Many companies are rolling out MPLS in preparation for, or in conjunction with, VolP initiatives. This makes sense, given MPLS' built-in ability to support latency-sensitive, any-to-any applications such as voice. Moreover, many of the folks I work with are taking advantage of MPLS' capabilities to deliver interactive videoconferencing across the WAN -

Short Takes

■ Verizon Business last week launched a new management console for its online trouble-ticket management system. Called Dashboard, the interface lets Verizon Business customers manage their voice, data and Internet network resources through a single, real-time view of network alarms. trouble-ticket status, network availability and service locations. Dashboard correlates network alarms and trouble tickets through Verizon Business' Impact network fault-management system. Dashboard will be offered free to Verizon Business customers in the United States, Europe, Middle East, Africa, Asia Pacific and Latin America next month.

VPLS: Building on the success of MPLS

particularly to remote and branch offices. By converging their voice, video and data over a common MPLS backbone, companies can save 25% to 40% over existing telecom costs.

But lower costs and QoS aren't the only benefits gained from moving to MPLS. As I've noted in previous columns, MPLS isn't so much a service as an architecture that can flexibly support multiple service offerings.

One such offering is Virtual Private LAN Service (VPLS), which relies on MPLS underpinnings to extend an enterprise's LAN transparently across the WAN. Within the carrier cloud, VPLS relies on an MPLS architecture. However, users connect to this cloud, not by routers but with Ethernet switches. The carrier uses a protocol such as Border Gateway Protocol or Label Distribution Protocol to connect sites across the WAN using pseudo-wires.

This lets carriers create a service that looks and feels just like a wide-area LAN, but is more robust and reliable. In case of failure anywhere in the network, the carrier will route a user's traffic along backup paths automatically.

Carriers are aggressively deploying VPLS: In February, Verizon announced an expansion of VPLS in the United States, Europe and Asia-Pacific as an access option to its MPLS-based IP services, and earlier this year telcos Broadwing and Hutchison Global Communications announced a VPLS-based intercarrier Ethernet network.

Although a standard VPLS network-tonetwork interface doesn't exist yet, some

efforts are underway to develop one. An area of particular promise is hierarchical VPLS (H-VPLS), which enables greater VPLS scalability by limiting the number of participating routers. As a corollary benefit, H-VPLS provides a mechanism for carriers to interconnect their VPLS networks.

If you're interested in getting up to speed on VPLS, H-VPLS and other MPLS initiatives, stop by MPLSCon in New York in a couple of weeks. You'll have a chance to hear yours truly discuss enterprise trends in MPLS rollouts. See www.mplscon.com for details.

Johnson is president and senior founding partner at Nemertes Research, an independent technology research firm. She can be reached at johna@nemertes.com.

Start-up takes aim at 'zombie' PCs

BY DENISE PAPPALARDO

Start-up Simplicita this week is launching its first set of products to help ISPs identify and fix zombie PCs on their networks.

The company is announcing Simplicita ZBX, which is a set of three products: Knowledge Reputation Server, DNS Traffic Switch and Walled Garden Server.

"A lot of security solutions have done one of two

things: They help identify a hijacked computer but then leave you to figure out how to fix it, or they quarantine or block zombie traffic," says Jan Dawson, principal analyst at Ovum. "Simplicita's products package different elements." The products also interact with existing security systems an ISP likely has deployed.

Reputation Knowledge Server is preconfigured to work with 18 public honeypots and internal reports stemming from firewalls, spam filters and systems that do deep-dive packet inspections, says Frank Bergen, CEO at Simplicita.

Companies such as Arbor Networks and Sandvine offer products that do deep-dive packet inspections to thwart and mitigate distributed denial-of-service attacks.

Simplicita says its products work in con-

Profile: Simplicita

Location:	Denver	
Founded:	2005	
Business:	Provide ISPs with products that help identify and quarantine zombie PCs on their networks.	
Products:	Simplicita ZBX servers	
Leadership:	CEO Frank Bergen	
Funding: \$2.1 million in round A from investors as yet unannounced.		

junction with other network and desktop tools used to keep networks safe.

"It's unusual, to be honest, to have a vendor recognize that there are things being done well," Dawson says. Simplicita's products interoperate well with other security platforms and incorporate those with its systems, he says.

Reputation Knowledge Server inspects all the information from these multiple sources as a customer attempts to surf the Web over an ISP's network. A user's activity also is compared with an ISP's acceptable-use policy.

The server uses all of these sources to flag a PC that's potentially being used as a zombie. Once flagged the DNS Traffic Switch redirects the user to the ZBX Walled Garden Server.

Once a user has been quarantined in the Walled Garden Server, he is instructed on how he can scan his PC for possible viruses or rogue software. How users are handled in the Walled Garden is determined by each ISP.

"ISPs may have some customers sent to the Walled Garden only as a warning that there might be a problem, or it will require users scan their PC before they can access the

Internet again," Bergen says.

In the Walled Garden, ISPs can direct customers to use desktop security products the ISP makes available, he says. For example, if an ISP is using anti-virus software from McAfee it may require that users update their software before accessing the Web. Or the ISP can also let users "hit the snooze button," and skip that step if they're on the road or in a hurry.

Simplicita says it is in talks with tier-one ISPs, but currently cannot name any as customers. Everwave, a smaller ISP in Denver, is testing the product, according to Simplicita.



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New BellSouth service delivers encrypted e-mail

BY JIM DUFFY

BellSouth last week unveiled a service that allows its business DSL customers to encrypt outgoing e-mail for enhanced security

BellSouth Secure Mail works with customers' Microsoft Outlook or Outlook Express e-mail software to encrypt and deliver confidential information e-mail can be intercepted, read and changed by hackers without a recipient's knowledge, BellSouth says.

The offering was spurred by

such as the Sarbanes-Oxley Act and the Health Insurance Portability and Accountability Act, for small businesses to ensure the privacy of their customers'

Compliance with these and other regulations is making e-mail encryption a necessity (see story at www.nwdocfind er.com/3147).

BellSouth joins secure e-mail vendors Espion (www.nw docfinder.com/3148) CipherTrust (www.nwdocfind er.com/3149) in offering products or services designed to secure e-mail in compliance with federal regulations.

Others are also targeting compliance with their security management wares (www.nwdoc finder.com/3150) As for other carriers, AT&T offers encryption on its client software for its Business Internet dial-up service. Verizon also has an e-mail encryption service for businesses called Verizon Secure Mail, which costs \$6.95 per mailbox.

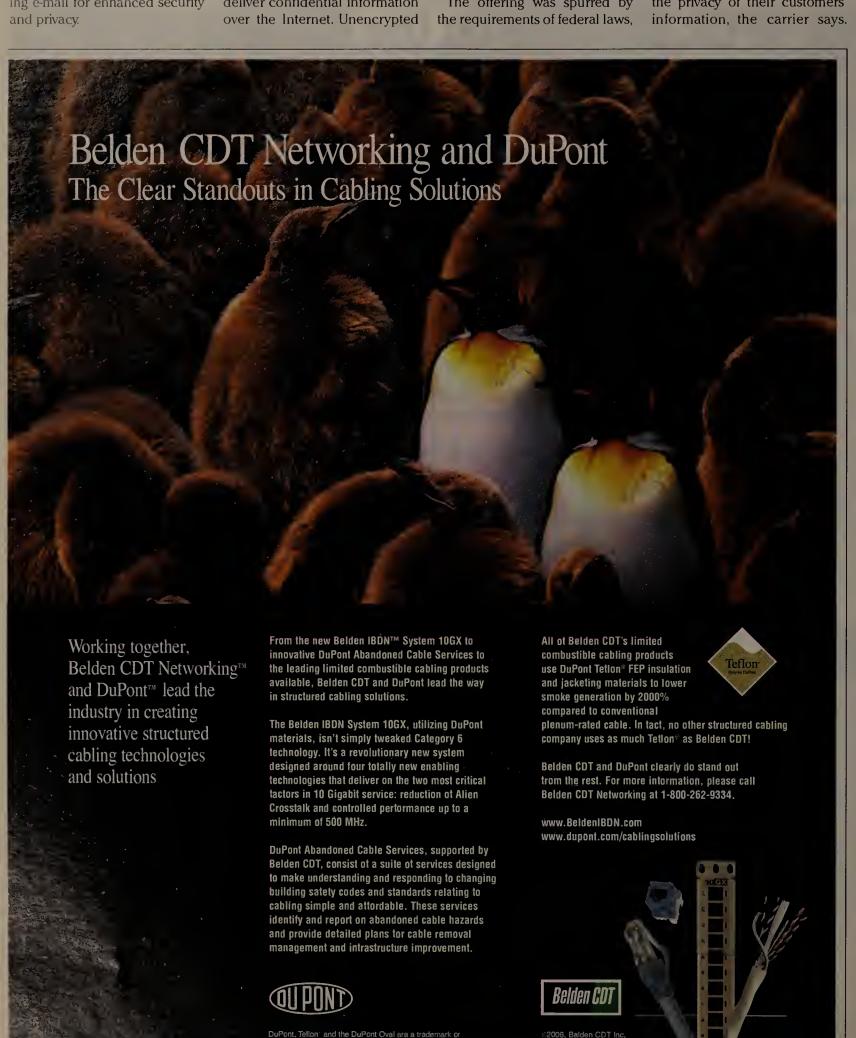
Secure Mail is an application represented by a "Secure" icon on a user's toolbar. For e-mail that requires protection, the user clicks the icon to immediately encrypt the message. Encrypted e-mail can be sent to recipients whether they subscribe to Bell-South Secure Mail or not, the carrier says.

BellSouth Secure Mail costs \$7.95 per month, per e-mail address. The service enables small businesses to send unlimited secure e-mail to any e-mail address in the world.

Secure Mail joins another Bell-South security service for small businesses recently rolled out by the carrier. BellSouth Premium Internet Security service features a host of security applications designed to help keep business customers' PCs free of spyware, viruses and (www.nwdocfinder.

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Telecommuting, security concerns grow

BY ELLEN MESSMER

Telecommuting has become a way of life as more companies let employees work from home to do jobs that might otherwise be done on corporate premises. As a result, IT managers are adapting security policies to encompass home PCs.

Last year an estimated 8.9 million telecommuters worked from home three or more days each month during regular business hours, according to IDC. A quarter of them worked exclusively from home. At places where home-based work has become the norm, IT managers say a key concern is ensuring each telecommuter's PC — typically granted remote access to a corporate LAN — keeps pace with office security guidelines.

"We have a fair number of employees who are telecommuters," says Dan Lukas, lead security architect at Wisconsin-based Aurora Health Care, which operates 13 hospitals and dozens of clinics and has about 25,000 employees. "We're driven by the business, not the technology."

Several hundred Aurora employees work from home transcribing voice recordings

made by physicians regarding their patients. These transcriptionists, situated all over the country, then remotely access Aurora's private-line network over the Internet to file each transcribed recording with a patient's online medical records.

Another type of telecommuter at Aurora is radiologists, who can access the network to look at medical images.

Kettering Medical Center Network, a group of five hospitals in Dayton, Ohio, with 7,000 employees and 1,200 physicians, is one of many hospitals that see growth in telecommuting.

"More and more, physicians want access to their offices from home, and we're giving radiologists secure access so they can read images from home," says Bob Burritt, Kettering Medical Center Network's director of technology.

According to IDC, healthcare is the industry in which telecommuting is most common, followed by the science and technical services arena, and manufacturing.

Lukas says Aurora transcriptionists who telecommute are given PCs with a standard image on them for hospital applications and security, such as anti-virus. They also are required to use secure VPN access.

The hospital is migrating from a Cisco IPSec VPN to a Juniper SSL VPN, since it doesn't require special agent-based software to deploy.

Aurora's IT staff coordinate with a business manager in charge of these workers' assignments to ensure they have access only to the database resources they require.

Another group of Aurora's telecommuters, teleradiologists, may be called upon at home to examine medical images stored in Aurora's multigigabyte storage-area networks and server-based repositories.

Because remote access is a critical part of Aurora's daily operations, Aurora installed Lancope's StealthWatch intrusion-prevention system to repel denial-of-service attacks or break-in attempts.

Automated access control is immature

Despite the industry buzz about automated procedures for checking a user's anti-virus and patch updates before granting network access, Lukas says Aurora officials, who recently tested Cisco's Network Admission Control products, believe that for the moment it's not a mature technology and is too expensive. "It would cost us \$50 per seat," he says.

Telecommuting is growing in acceptance: IDC predicts there will be 9.9 million telecommuters by 2009. A wide variety of organizations are offering telecommuter support. The Defense Information Systems Agency, which supports the military through technical services, is considering letting its 5,000 employees, many of whom live in Northern Virginia, telecommute at least a few days per week.

cated PCs to be used for work only.

"Don't allow shared computers," says Walsh, noting that it's poor practice to mix business and a family's homecomputer use.

"Kids are too smart. They know how to get things like key loggers, and it's happened." Walsh suggests an alternative might be installing a separate hard drive on a home computer with security con-

Tips for top telecommuter conduct

As telecommuting increases, experts offer an array of tips to keep corporate resources secure.

Provide telecommuting employees with PCs equipped with the standard office security applications and tools for remote management.

Sign a legal agreement with telecommuters about their PCs' appropriate use and ownership.

Include the role of the telecommuter in the corporate security policy, giving management and the human resources, legal and IT departments the opportunity to agree on security requirements for this type of employee.

Take precautions to ensure the availability of remote access through adequate bandwidth and redundancy, as well as protection against denial-of-service attacks.

Assign staff to interact with telecommuters as a specialized group whose work environment is significantly different from those on the corporate premises.

The financial-services industry is stepping gingerly into telecommuting, with IT managers aware that government regulators and auditors will want to know about security controls on home-based computers.

At Pennsylvania State Employee Credit Union in Harrisburg, Pa., a few dozen of its 650 employees, primarily the managers, are allowed to work from home, says Rob Ballard, IT support manager at PSECU.

These telecommuters receive a standardissue workstation from PSECU for homebased work, identical to what they are given in the office. In February, the credit union added Centennial Software's DeviceWall to its PCs to prevent USB mass-storage devices or iPods from gobbling data from any PC.

DeviceWall also lets machines work in read-only mode and can limit Wi-Fi connections and use of CDs. "We are audited frequently by internal and external auditors, and as a financial institution, we are held to a high standard," says Ballard, noting PSECU wants telecommuting to mirror its office IT security practices.

Consultant Tom Walsh recommends that organizations adopting telecommuting equip at-home employees with deditrols that deny access to all but the telecommuter.

Beyond simply having a telecommuter's PC mirror office PCs, Walsh recommends that businesses enter into signed agreements with telecommuters on exactly how home-based PCs are to be used. This helps establish not only that the business owns them but also how they're to be used and maintained.

A number of vendors, including CA with its Remote Unicenter, offer tools to manage Windows-based applications remotely.

Sioux Fleming, director of product management at CA, says she has seen insurance companies and other large companies hire third-party technical services to be on call to fix machines when telecommuters have trouble far from corporate headquarters.

While most companies deploy anti-virus software on telecommuter PCs, one type of security protection that's often overlooked is adding a desktop firewall, she notes.

"Port attacks are a real thing," Fleming points out. "While people inside the corporate LAN are probably protected at the gateway, people working at home are not."

Short Takes

Lenovo has made a grab for small and midsize business customers by teaming with retailer **Best Buy** to offer sales of its PCs as well as technology advice and product testing. Best Buy will host the service at its 135 Best Buy for Business locations in North America. The service will be a specialized version of Best Buy's Geek Squad service, a 24-hour, computer-support network that can dispatch technicians to customers' homes and offices. That service operates from 700 of the company's 930 North American locations to repair hard drives, contain virus outbreaks and offer one-on-one training. The move follows the February launch of Lenovo's 3000 series notebook and desktop computers, the first selfbranded products since the Raleigh, N.C., company bought IBM's PC division in 2005.



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TECHNOLOGY UPDATE

AN INSIDE LOOK AT TECHNOLOGIES AND STANDARDS

WAN emulators ease application tests

BY D.C. PAITER

Wide-area networks are usually bandwidth constrained, creating application bottlenecks. Further, round-trip delay and packet loss can degrade performance and cause instability that cannot be identified from testing on a LAN.

Extensive testing of applications and equipment is therefore critical to ensure acceptable performance under all network conditions. Fortunately, products known as WAN emulators make it easy for developers and IT managers to test in a lab environment under a wide range of conditions by emulating WAN links on a local network.

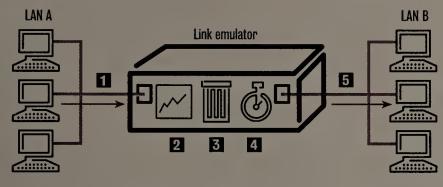
Ethernet-based WAN emulators replace an entire WAN infrastructure, including a WAN link and WAN access equipment such as routers and modems, making it possible to test applications and equipment using a single, Ethernet-based appliance on a local network.

These emulators are installed as bridges or routers connecting two local network segments. Network equipment and applications that would be used on opposites ends of the WAN link are installed on either side of the emulator. Users then dial in the bandwidth, latency, packet loss rate, bit error rate and other WAN parameters, and the WAN emulator applies these characteristics to the traffic passing through it.

As Ethernet frames arrive at the emulator destined for the opposite network, the frames are subjected to a series of processes that mirror the events that frames would experience first in the WAN access equipment and then traversing the actual WAN link.

HOW IT WORKS: WAN emulator

This testing tool emulates WAN links for use in testing applications under a range of network conditions.



- 1 A source device on LAN A sends frames to a destination device on LAN B through the emulator.
- 2 The emulator throttles frames to the specified WAN bandwidth. Excess frames are queued.
- 3 Frames are discarded based on packet loss and bit error parameters.
- 4 The emulator holds remaining frames for the specified link delay.
- 5 The emulator transmits frames to the destination device

The emulator places arriving frames in a queue to await their turn for transmission. The queue is configured to a maximum size to match the behavior of the WAN equipment, and may include a variety of policies for dropping frames when the queue nears its maximum.

When a frame reaches the head of the queue, it is passed to the transmission-emulation process, which determines the precise amount of time required to transmit each frame based on the frame size and link rate. For example, a 1,500-byte frame

requires approximately 8 millisec to pass each frame to a T-1 line.

To calculate this transmission time accurately, the Ethernet-based emulator must compensate for any difference in link-layer overhead between the Ethernet frame and the actual WAN framing type specified by the user and include any other source of overhead, such as VPN tunnel headers.

Emulating WAN link conditions

Once frames have completed the transmission process, the emulator adds the

effects of the WAN link itself, including loss and propagation delay.

Frames are discarded based on configured packet loss or bit error parameters, reflecting loss because of congestion and corruption on the link. Loss can be modeled as a random distribution or with a special distribution to match the particular loss characteristics of the WAN technology.

The emulator then holds the packet for an amount of time equal to the configured link-propagation delay, which is the time that frames spend traversing the WAN. For this process, the propagation delay includes latency caused by the distance the signal travels as well as delays caused by link-layer retransmissions and other WAN link effects. Propagation delay may be modeled as a constant value, appropriate for dedicated terrestrial links, or as a variable delay for wireless, satellite or mesh networks.

Finally, frames are sent from the opposite interface of the emulator to the destination exhibiting the same characteristics as frames traversing an actual WAN network.

By making it possible to test and troubleshoot application performance in a lab under real-world conditions, Ethernet-based WAN emulators are valuable both for product developers to simulate a variety of customer networks and for IT managers to benchmark products and troubleshoot application-performance issues.

Palter is president of Apposite Technologies. He can be reached at dc@appositetech.com.

Ask Dr. Internet

By Steve Blass

I want to convert the database definition of an existing SQL database into an XML schema, so I can use the schema with model-driven development tools (Eclipse Modeling Framework) to create a new distributed application that works with the data. Are there tools available for converting SQL databases into XML?

Several SQL-to-XML conversion and translation tools are available. The Enterprise and Professional versions of the XMLSpy products from Altova.com can produce

an XML schema from a relational database. The DB2XML package at www.nwdocfinder.com/3153 is a Java tool set that converts the results of database queries of your entire database into XML or HTML documents. This package can be run as a stand-alone, as a servlet or as part of your application using the DB2XML API. An unrelated program, called DB2XML.asp (available at www.nwdocfinder.com/3154) shows how to perform such conversions using .Net code. Stylus Studio is a commercial offering that uses ADO to convert between SQL and XML. There also is the XML

Converter at www.nwdocfinder.com/3155. Each program has its strengths, but there are enough choices that you should find one or more that perform the conversion you're looking for. This can be a large undertaking. The XML APIs for databases article at www.nwdocfinder. com/3156 is worth reviewing in case you can meet your needs without doing an all-out conversion.

Blass, a network architect at Change@Work in Houston, can be reached at dr.internet@change atwork.com.

INSIDE THE NETWORK MACHINE

Mark Gibbs

Corrections and conversions

As you might have guessed, the Wolverine MVP 60GB Portable Multimedia Storage and Player we reviewed a couple of weeks ago (www. nwdocfinder.com/3172) is a candidate for creative hacking.

We found a posting (www.nwdoc finder.com/3173) complete with screen shots on the Digital Photography Review Storage and Media forum on how to upgrade the Wolverine's hard disk. The posting's thread is quite long, going into topics such as how to change the battery

and how to mount the Wolverine as a USB drive under various operating systems other than Windows.

While all of that is good, still we'd like to see ways to modify the Wolverine's operating system so it can be improved and extended. Oh, and sorry, but we mistyped: The Wolverine MVP 60GB is available for around \$300, not \$200.

Another correction: Reader Scott Stanton pointed out that we made "two references to television 'standards' ... neither of them correct." Indeed so, although we must defend our technical knowledge as the expansion of the acronyms PAL and NTSC we originally used were mangled in the editing process.

Stanton points out that "PAL is Phase _Alternating_ Line [and] NTSC is National Television Standards Committee."

He also notes that NTSC "actually has never been formally accepted as a standard. It is a recommended standard (SMTP RS-170A) only. In television engineering circles it is also known as Never Twice the Same Color because color carrier phase is set at the receiver by the user (the "Hue" control) who, as we all know, is clueless."

Regarding our question about converting M4P files (Apple's Digital Rights Management [DRM] protected format) to MP3, reader George Pasley suggested using a utility

We'd like to see ways to modify the Wolverine's operating system so it can be improved and extended.

called dBpowerAMP published by Illustrate.

DBpowerAMP is a great piece of software that can transcode between a tremendous number of formats, but unfortunately cannot handle M4P files.

A technique we have seen proposed is to use iTunes to play the M4P music files and use a tool such as Total-Recorder from High Criteria.

TotalRecorder is one of many utilities available that substitutes its own audio driver in Windows and relays the audio output it receives to the real audio driver. As it performs the relay, Total Recorder takes a copy of the data and saves it in whatever file format you like. Voila! A DRM-free version of your own legally acquired music for you to use on the music player of your choice.

As far as we can tell this is legal. According to Apple's

iTunes Music Store Terms of Service: "You shall be entitled to export, burn (if applicable) or copy products solely for personal, noncommercial use."

After reading the Terms of Service, it would appear that as long as you are playing by the rules, transcoding by copying or burning is OK. Exactly what those terms mean could well be up for debate.

The downside of this method? You have to let iTunes play each file so your transcoding will take at least as long as the duration of the music. Ugly but effective if you have a spare PC and the time.

There is, however, another downside to using Total-Recorder: You won't automatically get the MP3 tags set up because the track data isn't available to external programs — for that you'll need to jury-rig a naming system and that just seems too painful.

The best solution we can find still seems to be to burn a CD and then rip it using a ripper that supports interrogating of Gracenote to get the track data. To improve on this would require a virtual CD burner so that you could have iTunes write to a virtual CD from which you could rip your MP3s. Automate this solution and you'd have the problem licked.

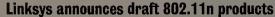
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CoolTools

Quick takes on high-tech toys. Keith Shaw

The Cool Tools testing lab is on a brief hiatus, as I'm on the road with the Network World Wireless & Mobility Technology Tour (stops this week in Austin, Texas, and Anaheim, Calif.). Luckily, some new products are coming out that will keep me busy when I return.

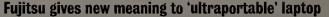


Linksys today is expected to announce availability of its draft 802.11n wireless products (based on the IEEE draft 802.11n standard), joining Netgear and Buffalo Technology as vendors with draft-n products.

Linksys says its Wireless-N Broadband Router (WRT300N, about \$150) and Notebook Adapter (WPC300N, about \$120) are available at BestBuy.com, with other locations available shortly. The company says the new equipment offers up to four times the range and up to 12 times the throughput of its wireless-g products. Like its earlier SRS product, the new Wireless-N offerings utilize multiple input, multiple output to simultaneously transmit two streams of data over multiple channels. To support the draft specification, Linksys says its products will provide mixed-mode operation and backward compatibility with 802.11g and 802.11b products.

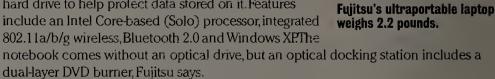
Security features include support for Wi-Fi Protected Access, VPN pass-through and a stateful packet inspection firewall. Security options are accessed through the browser-based configuration

utility, Linksys says. Additional products in the Wireless-N line will be launched in the secoud half of the year, the company says.

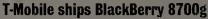


Fujitsu Computer Systems last week debuted its LifeBook Q2010, a "high-end executive notebook" that weighs 2.2 pounds, includes a 12.1-inch widescreen display and is about 0.75-inch thin. The notebook is expected to be available this summer.

While the notebook may be thin, it has titanium hinges, a magnesium housing and shock-mounted hard drive to help protect data stored on it. Features include an Intel Core-based (Solo) processor, integrated 802.11a/b/g wireless, Bluetooth 2.0 and Windows XP.The



Security features include support for the Trusted Platform Module 1.2, and a builtin fingerprint sensor. The Q2010 will include a three-cell battery to keep the notebook lightweight, or a six-cell battery option with up to eight hours of life. More details on the system are available at www.nwdocfinder.com/3157.

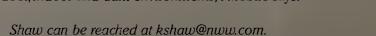


Research In Motion and T-Mobile USA last week launched the BlackBerry 8700g, combining the latest in wireless e-mail, cell phone and Web browsing features in a small form factor. The device is available at T-Mobile's retail stores and Web site. Pricing depends on data plan chosen.

The 8700g includes support for instant messaging services and 10 e-mail accounts, and works on T-Mobile's Edge wireless network. Other features include 64MB of flash memory and 16MB of synchronous dynamic RAM; dedicated Send, End and Mute phone keys; a 320-by-240-pixel LCD screen with 65,000-color support; and light-sensing technology that adjusts the screen and keyboard lighting for viewing in outdoor, indoor and dark environments, T-Mobile says.



The Linksys Wireless-N Broadband Router is avail-





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Has open source changed the game?

panel of open source CEOs took the stage at the recent LinuxWorld conference for a panel called "The death of the enterprise software business model." While one-sided, the discussion provided insight into the opportunities and challenges facing the community.

Moderated by Larry Augustin, chairman of VA Software, the panel featured Marc Fleury, founder and CEO of JBoss; Marten Mickos, CEO of MySQL; John Roberts, CEO and cofounder of SugarCRM; and Peter Levine, CEO of XenSource.

The benefits of open source development start with visibility, said Levine, who was an executive vice president at Veritas before joining XenSource in February. The company, which makes virtualization tools, already has 20 testers lined up for the beta of XenEnterprise — a packaged version of the company's core product — when it comes out this summer. "At Veritas it was hard to get one," he said.

And when products are available, buyers can typically experiment before committing to deployment. "Customers can try on the shoes before they buy them," Mickos said. "The model just makes sense."

In SugarCRM's case, the folks trialing the software can be line-of-business users, Roberts said: "You don't have to be a developer to evaluate our software."

Wide visibility and accessibility leads to activity, which is good, but can make it hard to identify business opportunities, Mickos said. MySQL is downloaded 50,000 times a day, but only five of those might become new customers. "You have to be careful about lead qualification," he said. What of the others? "The rest can help with bug fixes."

But for all of the benefits, there is one major gotcha. "In open source, the rule is release early, release often. But that's often at odds with what enterprises want," JBoss' Fleury said. "If I have \$10 million to invest in product, we do 10 \$1 million projects and put it out there to see what works."

Enterprises don't like to be flooded with releases because of the energy involved in adoption, nor do they typically like to serve as guinea pigs.

While that would appear to favor traditional software developers, it also represents a limitation. With conventional development, Levine said, "the train leaves the station every two years and if you don't get your features on that train, you have to wait for a long time."

It's Fleury's opinion that the benefits outweigh the draw-backs and the traditional crowd is getting nervous: "When open source was Linux and a penguin, very cute," he said. "Now they hate our guts."

Time will tell, Mickos said: "If open source is truly a superior way to develop software, as we claim, ultimately others will have to adopt it."

— John Dix Editor in chief jdix@nww.com

Opinions

Influential people

Regarding the story in your 20th anniversary issue, "20 people who changed the industry" (www.nwdoc finder.com/3142): Gil Schwed and Shlomo Kramer "invented" the firewall? Give me a break! Check Point came on the market five years after Digital Equipment Corp. (DEC) was selling the SEAL firewall, four years after ANS was selling the InterLock and Raptor was selling the Eagle, and one year after Trusted Information Systems (TIS) was selling the Gauntlet.

Marcus Ranum Chief security officer Tenable Network Security Columbia, Md.

Shlomo Kramer the "father of the firewall"? Check Point only marketed it better and arrived on the scene years after the seminal work of Dave Presotto. Steve Bellovin and Bill Cheswick of the former AT&T Bell Labs, Marcus Ranum and Fred Avolio of DEC, Brent Chapman of Great Circle and countless others had already described, sold, installed (in 1992 I participated in the installation of the second DEC SEAL firewall long before Check Point was even a blip on the horizon) and sweated through developing the nascent protection mechanisms that most folks take for granted today. That this packet-filtering product was able to gain mind share may be due more to corporate arteriosclerosis on the part of real pioneering companies than it was to any bleeding-edge advances that came out of Check Point.

> Bryan Boyle Senior security architect Trenton, N.J.

Check Point invented the firewall? That's the most revisionist historical perspective I've ever heard.DEC SEAL was the first commercial firewall, followed by

the TIS Firewall Toolkit and Gauntlet; Check Point didn't come into play until the market was already established. I'd consider Marcus Ranum the father of the firewall.

Paul Robertson Moderator, Firewall-Wizards Editor, Network Firewalls FAQ Alexandria, Va.

I like Gil Schwed and Shlomo Kramer well enough. But surely even they would say before them was DEC SEAL (the first commercial firewall, installed at DuPont in Wilmington, Del., in June 1991), Raptor, NSC and TIS Firewall Toolkit. They certainly did not invent the firewall and surely have the integrity to say that they did not. Bill Cheswick and Steve Bellovin were well before.

Fred Avolio President Avolio Consulting Lisbon, Md.

I'd give the father of the firewall award to Jeff Mogul for his work on screend. Dave Presotto built the earliest application-level firewall that I know of.

> Bill Cheswick Chief scientist Lumeta Somerset, N.J.

Editor's note: While the "father of the firewall" title does indeed seem better placed with another individual — although to whom that distinction should go not even the security experts agree — Kramer and Schwed do deserve credit for evangelizing the technology and spurring widespread enterprise use.

E-mail letters to jdix@nww.com or send them to John Dix, editor in chief, Network World, 118 Turnpike Road, Southborough, MA 01772. Please include phone number and address for verification.



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CYBER SPACES
Daniel Blum

Authentication: Where's the magic factor?

s cybercrime threatens online banking security and technologists debate the efficacy of two-factor authentication solutions, business and technical questions remain.

In a *Network World* "Face-Off" last year, RSA Security's Joe Uniejewski argued for two-factor authentication (which regulatory authorities recommend), while Counterpane's Bruce Schneier pointed out that attackers would find ways around this and banks would be better off addressing transaction security (see www.nw docfinder.com/3139). I believe stronger authentication will help, but the industry also must focus on user awareness, computer security, network hygiene and business questions around transaction security.

I recently attended a meeting of NACHA-The Electronic Payments Association, at which it became clear that regulators are fairly openminded about evaluating how banks address risk and that a ferment of creative energy and innovation is going into this area. The technical discussion is all about what one considers an authentication factor.

Is Authentify's voice recording, collected on the phone at the time of a transaction for audit purposes, a factor? Is Bank of America's SiteKey from Passmark, which displays a picture chosen by the user to authenticate the site, a factor? How about RSA Security's fraud network acquired from Cyota? Or 41st Parameter's sophisticated real-time device identification? Or Strikeforce Technology's plethora of plug-in functions?

The question no one seems to be asking out loud is: Who owns the liability?

Could eWise's innovative, human-only-readable watermark hold the key? The latter weaves a transaction description such as "Wire \$5,000 to Shanghai" alongside an illustrated confirmation code for the user to enter (or not). Potentially the answer to all of these questions is yes.

From a business perspective, banks are much less concerned about losses to fraud than they are about scaring away customers. To them, online banking represents a Mecca of huge cost savings and revenue opportunities. The technical solutions that win out for them will be those that offer unobtrusive but effective protection.

The question no one seems to be asking our loud is: Who owns the liability? Astute users remain uneasy about what happens if a fraudster cleans out their bank account in a world of strong authentication. Will the bank make good the user's losses out of concern for its reputation, or will it hold the user negligent? A bank that invests in one-time password tokens will argue the devices are effective and thus, only the user could take money out of the account.

A government representative told me, "I would interpret Regulation E [regarding electronic funds transfer] to make the bank responsible. The computer is just another access device, like an ATM." But no one knows how the courts will rule when Regulation E is put to the test.

Even with the best technical solutions, there will be residual risk. With the business question of transaction security still up in the air, vendors are placing their bets, but many banks seem to be waiting for clearer direction, and knowledgeable users are anxious.

Blum is senior vice president and research director with Burton Group, an integrated research, consulting and advisory service. He can be reached at danjblum@yahoo.com.



YANKEE INGENUITY Howard Anderson

The future of disruption

lay Christensen dropped by my class at MIT the other day to talk about disruptive technologies in communications. Christensen, a Harvard Business School professor and author of *The Innovator's Solution*, pointed out that the incumbent company rarely loses its best customers because it always immediately addresses any foray by an upstart.

The real danger comes when an upstart goes after customers the incumbent doesn't want, either because they are too few, too poorly financed or just too disorganized. The disruption doesn't occur because the technology is new and strange, but because it disrupts the business models. For a carrier, buying a Class 5 switch meant that millions of dollars would change hands, software upgrades would cost \$500,000 and the carrier would charge the consumer or business tons for voice calls. Each party made lots of money.

But when the new technology costs 1/10th or 1/20th of the incumbent technology, new competitors can come in, make money and drop their costs to almost nothing. Here's an analogy: Suppose there was a new airline that could buy jet fuel for 10 cents a gallon, could buy 747s for \$1 million, could fly with only one pilot and one stewardess (both nonunion) and was exempt from paying landing fees. How do you think the traditional airlines would do?

A few months ago, I nominated Skype as a *Network World* power winner (see www. nwdocfinder.com/3138), because it is changing the economic underpinnings of the communica-

tions industry. Today, Skype has 75 million customers, 10% of whom live in China. If you use conventional circuit switching to call the United States from China, the cost is 42 cents per minute; if you use Skype, it's 2 cents per minute.

Now you have a situation where the incumbents are unable and unwilling to follow. No company willingly takes its cash-cow products and crucifies them to match upstarts who are going after cus-

When technology comes along that ruins the economics, the incumbents will be almost paralyzed.

tomers who are too few and too poor — and whom the company doesn't want anyway. But by establishing a beachhead on the Unfortunate 500 or by serving 1.5 billion Chinese, the upstarts now can continue to move up the pyramid.

Boston, like 137 cities across the United States, is flirting with free or quasi-free Wi-Fi and WiMAX. Broadband access now is regarded as almost a right, not a privilege. Today 99% of the ZIP codes in the United States have access to broadband, according to the FCC (though they regard wideband as anything over 200Kbps, which shows you how behind the times they are). If you had just 200Kbps, you would swear you were in the Third World. The cities haven't faced up to the fact that wideband access won't be used just to gain

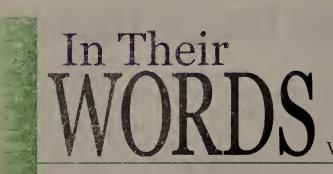
access to data; sooner or later it will provide free telephony and even wireless video.

Listening to your best customers — the Fortune 500 or the RBOCs, for example — works only for a while. It will help improve your existing products and keep frontal competitors out. But when technology comes along that ruins the economics, the incumbents will be almost paralyzed.

Skype in China operates in a gray area of regulation. Officially, you aren't supposed to be able to make voice calls from a PC to a handset, but regulation is always behind technology. Sooner or later, the traditional Chinese fixed-line phone companies, China Telecom and Netcom, will try to bottle up Skype. They will offer a cheaper service based on Internet technology, but why pay 30 cents or 20 cents or even 10 cents when you can pay 2 cents with Skype? Want to bet that within two years China will be 25% of Skype's business—and 50% within five years?

Let's go full circle. Paul Baran, one of the names on the original IPX patents, had two great ideas: distributed networks and packet switching. By combining these, he fathered a revolution in communications and possibly in worldwide political systems — the ultimate disruption.

Anderson is the founder of The Yankee Group and Yankee Tek, and a co-founder of Battery Ventures. He lectures on technology at the Massachusetts Institute of Technology and speaks on technology subjects at meetings across the country. He can be reached at handerson@yankeetek.com.



Vendor Solutions for Your IT Challenges

COMPANY: Layer 7 Technologies

OVERVIEW: Fast, Flexible XML Firewalling from Layer 7 Technologies.

CHALLENGE: XML, Web Services and Service Oriented Architectures (SOA) provide enterprises with a framework for integrating applications and business processes in a flexible and cost-effective fashion. But with this flexibility comes concerns about securing information flows and ensuring that proper controls are in place. The use of XML / Web services technology in SOA deployments presents architects and security managers with several challenges:

- Performance: Implementing XML threat protection, access control, and integrity at gigabit rates without creating network bottlenecks. XML processing is very complex and can tax most servers.
- Scalability: Scaling security solutions to meet future throughput requirements. SOA growth is explosive and solutions need to scale to meet future load.
- Flexibility: Making it easy to customize security policies to specific security standards, client deployments and services without coding or testing.

SOLUTION: Layer 7's SecureSpan XML Gateway is a market-leading XML Firewall designed to protect distributed XML applications against attack, unauthorized access and message level security violations while ensuring wirespeed throughput, high availability clustering and policy flexibility to address current and future needs

- Performance: A single SecureSpan XML Gateway can process over 300 million messages per day.
 SecureSpan uses 64-bit technology and dedicated XML ASICs to ensure high throughput.
- Scalability: SecureSpan is the only XML Gateway to scale linearly with automatic policy replication across nodes to ensure security consistency and availability
- Flexibility: SecureSpan is the only XML Gateway built around the WS-Policy standard, allowing easy customization around identity, threats, integrity and SLAs.

To learn more about the SecureSpan XML Gateway and supporting XML security products please contact us at 800-681-9377 or info@layer7tech.com or visit our Web Site at www.layer7tech.com.





COMPANY: Vigilar, Inc.

OVERVIEW: Source One Direct, a provider of secure and non-secure card-based and laser-printed marketing/business communications, discovers a path to optimal security with freedom from device management.

CHALLENGE: Source One Direct wanted well-trained and experienced staff managing their IT and security devices and an insurance plan should something go wrong with them. But they did not want to pay staff salaries and benefits to do it.

SOLUTION: Source One Direct understood that given the time and expense of purchasing hardware and software, tuning and hardening the solution, hiring and maintaining staff, and managing a security implementation over time, a managed security service solution would make solid economical and business sense.

They had several devices that needed managing, two of which that were in a high availability cluster. They were looking for reliable, knowledgeable people to monitor these devices and had two options: They could hire a staff of skilled and probably expensive pros to monitor and manage these devices, or they could outsource it to a Managed Security Services Provider (MSSP) for a fraction of the cost.

Source One Direct had already established a trusted relationship with Vigilar for other security needs, so they turned to Vigilar for their MSSP services. Source One Direct's John Scarborough stated, "They already knew our network inside and out and the fees fit nicely into my budget — the cost is significantly less than if I were to hire someone, and this way I have a whole team managing my devices. Since I had worked with them for more than a year, I knew that their SOC (Security Operations Center) team had the expertise I would have looked for if I were to hire someone to manage these devices in-house."



866-365-8401 www.vigilar.com **COMPANY:** NeoPath Networks

OVERVIEW: Blackboard Incorporated, the leading ASP in e-learning services, implements file virtualization to perform large-scale data migrations and better manage its global storage infrastructure.

CHALLENGE: Blackboard is one of the leading providers of distance learning software and services to over 4 million higher education, K-12, and corporate users each day. With over 100 terabytes of storage on dozens of file servers located around the world, VP Ahmar Abbas needed a comprehensive solution to perform large-scale file migrations and to optimally place rich content across different tiers of storage, all transparently to users. "We have SLAs with all our customers, and downtime to perform migrations is unacceptable," says Abbas.

SOLUTION: After evaluating offerings from multiple vendors, Abbas chose to implement the File Director from NeoPath Networks. "We selected NeoPath's File Director because it allows us to transparently move data between file servers and NAS devices without impacting performance levels or disrupting millions of students and teachers who need 24 x 7 uninterrupted access to their courses, assignments, quizzes and content," explains Abbas. "Compared to other options, File Director offers a cost-effective approach to an otherwise challenging, costly and time-consuming process."

The File Director introduces a file virtualization layer between clients and physical storage devices, enabling painless data migrations, intelligent tiering, and the implementation of a virtual namespace — all without user disruption. It enables Blackboard to optimize the placement of rich content across different storage tiers and geographies, and to perform large-scale data migrations without incurring user downtime.

The benefits to Blackboard include optimization of storage resources and reduced labor hours spent managing migrations. As Abbas puts it, "We don't have people babysitting migrations anymore, so we've deployed our staff onto other tasks that are more important to our profitability and growth."



650-691-7700 www.neopathnetworks.com

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INTEROP2006

Show planner

MONDAY MAY 1

DINKEN STATE

8:30 a.m. to 5 p.m. Application Performance Day

Interop attendees using the conference as a vacation from managing their slow, unresponsive networks should sign up for the Application Performance Day. This two-track, all-day event will focus on analysis and troubleshooting in one part, and improvement and strategy in the other. The former track will break down the factors that cause applications to slow down, and how to tell whether it's the application or the network that's actually the culprit. Leading this track is Mike Pennacchi, executive network analyst at Network Protocol Specialists, who will use a mix of instruction and case studies.

With the problems diagnosed, the improvement and strategy track, led by Peter Sevcik, president of NetForecast, will examine how to deal with the issues that can slow down networked applications. If your organization is sending multiple folks to Interop, it might make sense to send someone to each session and have them compare notes.

8:30 a.m. to 4:30 p.m. Real-time Collaboration Techniques

The all-day session will go over how videoconferencing, VoIP and instant messaging applications can help a business improve productivity. The meeting will get down to the nitty-gritty of QoS, compression protocols and multicast streaming technologies to make it happen. If you don't know Session Initiation Protocol from SIP for Instant Messaging and Presence Leveraging Extensions, or what Internet Message Mapping Protocol, H.323 or Real-time Transfer Protocol are all about, learn from Francois Fluckiger, deputy leader at CERN, the European Particle Physics Laboratory, where these techetwork World isn't the only network industry thought-leader celebrating its 20th anniversary this year — the Interop conference and expo, happening May 1-4 at the Mandalay Bay Convention Center in Las Vegas is 20 too.

Networks and Interop have seen plenty of changes in those years: the emergence of Internet and IP, the dot-com rise and fall, the emergence of wireless and the changing global IT security landscape. The show also has evolved since its incarnation as NetWorld+Interop — which was mostly a collection of engineers gathering to make their stuff work together.

The emergence of networks from mundane corporate infrastructure to a key business tool and asset is reflected in changes and additions to the Interop education program and the overall theme of the show this year, Interop executives say.

"Changes in Interop over the years represent the maturing of the role the network plays in businesses," says Lenny Heymann, Interop general manager.

The breadth of technologies covered in the various Interop tracks — Application Networks, Data Center, Infrastructure & Services, Open Source, Security, Storage, VoIP & Collaboration, Wireless & Mobility — reflect this, as do the business- and strategy-focused workshops such as the CIO Boot Camp.

Emerging technology trends at this spring's Interop will focus on data center technology and virtualization of storage and servers, says Steve Wylie, director of content for Interop, with a two-day Data Center Summit, hosted by Nemertes Research. Hot topics this year in data centers include consolidation of servers and storage on the hardware side, Asynchronous JavaScript + XML and service-oriented architecture Web services programming with the software angle.

On the other side of that coin, branch-office technologies also will be featured on the show floor, with an InteropLabs setup demonstrating the latest products in branch-office network technology from Cisco, Network Devices and others.

"And of course wireless and mobility have been big for years, in terms of Interop educational focus and technology demonstrations," Wylie says. This continues this year, but with an extended focus on wireless strategies in terms of business drivers. "Some senior IT people may not want to know how WiMAX works," down to the protocol radio frequency levels, he says. The Wireless & Mobility conference track has also been expanded, with more speakers and, most importantly, more room for the sessions, Wylie says.

Here's our take on the most important sessions you should be watching for.

nologies are being used to deploy realtime collaboration tools. (Don't worry, there will be no nuclear physics in this session.)

8:30 a.m. to 4:30 p.m. Wireless and Mobile Broadband Networking

Wireless and mobile are pretty broad concepts, and this daylong workshop covers all the major and developing technologies, from 802.11, 802.15, Bluetooth and personal-area networks, as well as Evolution Data Optimized, Multiple Input Multiple Output and wireless mesh. Cellular and 3G are also covered. Wireless expert Craig Mathias, principal of the Farpoint Group consultancy, leads this comprehensive program.

TUESDAY MAY 2

DIRKE HE CHANG

11:15 a.m. to noon Running Scared: IPS Vendors and Performance Testing



David Newman

David Newman, president of Network Test and a member of the Network World Test Alliance, will show the performance of as many as 10 high-

end intrusionprevention system (IPS) devices. However, that represents only a third of applicable products on the market, so what happened to the others? This session will cover the ins and outs of public IPS performance testing, and why it has some vendors running scared.

9 a.m. to 10 a.m. Keynote: John Chambers, president and CEO, Cisco



John Chambers

As per Interop tradition, showgoers can expect the leader of the largest network company to deliver a state-of-the-network-industry talk and outline the challenges fac-

ing corporate IT executives. Of course, the products Cisco has to solve such problems will play prominently, along with the always-entertaining demo.

Show Planner: Interop 2006

10:15 a.m. to 11:15 a.m. The Mind of the CSO

If you want to think like a chief security officer, or just get inside your company CSO's head, attend this session, run by Al Kirkpatrick, CSO at First American. The session will explain the experts' approach to information security, and how to apply high-minded concepts to the workings of your network.

11:30 a.m. to 12:30 p.m.

Follow the Money Trail: What Networking **Trends Do Investors Believe In?**

Network executives can't bury their heads in the minutia of protocols, feeds, speeds and technology. They have to have the long view of industry trends and what technologies to be ready for in the future. This session, hosted by Dell'Oro Group founder and president Tam Dell'Oro, includes some heavyweights of the industryinsider club such as Steve Kamman, networking and data infrastructure analyst for CIBC World Markets; Carl Amdahl, technology partner at Doll Capital Management; and Inder Singh, senior vice president of Prudential Equity Group.

1 to 2 p.m.

Keynote: Donald Peterson, chairman and CEO, Avaya; and Gordon Stitt, president and **CEO. Extreme Networks**





Gordon Stitt Donald Peterson

Consider this the rebuttal to Chambers' morning talk. Peterson's and Stitt's companies represent the alternative to Cisco's total-solu-

tion approach to enterprise LAN switching and VolP. Expect a discussion on the benefits of open standards, the dangers of vendor lock-in and some light Cisco bashing.

3:30 p.m. to 4:30 p.m. **Application Front Ends: Is a Universal Platform for Data Centers a Reality?**

Find out what all the buzz is about regarding this emerging network technology product category. Application front ends, as they've come to be known, sit in front of data center servers and have the task of speeding up Web and traditional client/server application traffic. Vendors of this technology will discuss their approaches, while Carl Stjernfeldt, a partner at Battery Ventures, moderates.

8:30 a.m. to 5 p.m. Running IT as a Business

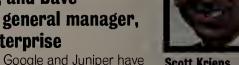
Stop running your IT shop like a sinking ship or a Soviet-era bureaucracy and get entrepreneurial and competitive with your department management. This session will tell IT executives how to transform the perception of the network from a costly burden to a strategic corporate asset. The session covers everything from how to manage vendors, to methods for evaluating new technologies, strategies for getting IT projects funded, and aligning network strategy to meet business goals. James Metzler, vice president of Asthon, Metzler & Associates, leads this all-day workshop.

WEDNESDAY MAY 3

PICKALTHEDAY

10:15 to 11:15 a.m.

Keynote: Scott Kriens, chairman and CEO, Juniper **Networks**; and Dave Girouard, general manager, **Google Enterprise**

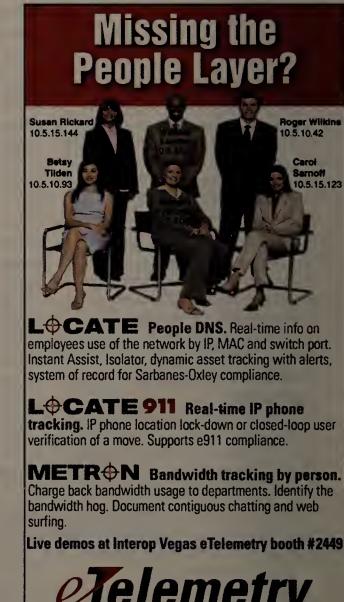


Scott Kriens

What could Google and Juniper have up their sleeves? Find out in this key-







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note session with two executives who have technologies that power the heartbeat of the Internet and World Wide Web, respectively.

10:15 a.m. to 11:15 a.m. Wi-Fi Update: 802.11n and More

If your company uses Wi-Fi, you need to know what 802.11n is and what it does. How will 802.11n interoperate with past standards? Does it really have the speed and security promise that standards-crafters purport? Paul DeBeasi, senior analyst with the Burton Group, dissects wireless technology with speakers from top wireless LAN vendors Xirrus, Colubris Networks, Meru Networks and the Wi-Fi Alliance industry group.

11:15 a.m. to noon SSL VPN Testing Dissected

Speaker: Joel Snyder, senior partner, OpusOne Network World recently published the results of

Snyder's groundbreaking SSL VPN testing, in which he examined almost every major SSL VPN product from eight testing points of view. Snyder will break down the published results and delve into the unpublished lessons learned from more



Joel Snyder

InteropLabs

Time: InteropLabs is open during show floor hours Location: Dedicated area of show floor. Booth # 2506

InteropLabs is the experimental portion of the Interop show network where dozens of experienced net work engineers test hundreds of commercial and open source products, focusing on how they can work together peacefully on a corporate network. The testing — which is actually staged in early April — culminates in a series of formal demonstrations on the show floor.

EROP

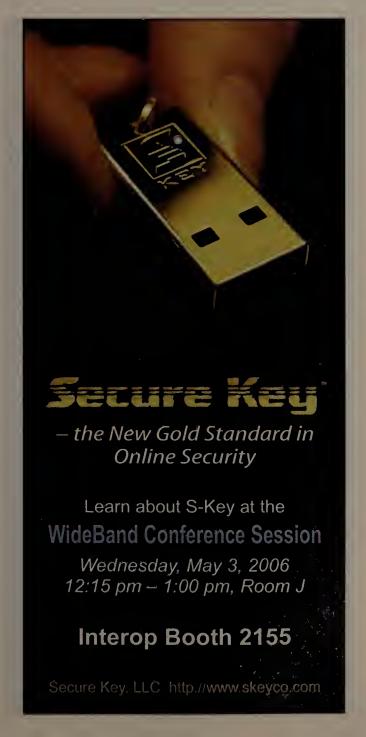
The three focal points of this year's InteropLabs demonstration address the following questions:

• Can the network access control (NAC) prod-

ucts being touted by almost every security vendor alive actually work together to fulfill the promise of a safer network? Stop by the InteropLabs and ask for Network World Lab Alliance member Joel Snyder, who will explain in detail where the current NAC products stand up and fall down.

- What happens when previously interoperable VoIP devices go to work in decidedly unfriendly environments, such as through security devices with network address translation (NAT) turned on, or across wireless LAN links? Network World Lab Alliance member David Newman can offer a detailed explanation of why NAT ties and wireless connections need to be accounted for in any future VoIP deployment.
- Can open source operating systems and applications integrate with existing Windows environments? Network World Lab Alliance member Rodney Thayer can point out the bits and pieces of this open source network that just might be ahead of the commercial products that accomplish the same end.







Show Planner: Interop 2006

Analyst Roundtable on Wireless

2:15 p.m. to 3:15 p.m.

Moderator: John Dix, editor in chief, Network World Speakers: Craig Mathias, principal, Farpoint Group; Francis Rabuck, president, Rabuck Associates; Greg Collins, senior director, Dell'Oro Group; Joel Conover, principal analyst, Current Analysis



John Div

Some of the industry's leading wireless analysts share their views on key developments and how they will affect the enterprise over the next few years. Everything from the state of 802.11 standards — including those focused on performance, QoS and security — to VoIP over wireless LAN, metropolitanscale Wi-Fi deployments and emerging technologies such as WiMAX Mobile and 3G cellular data services.

than four months of testing these security platforms.

11:30 a.m. to 12:30 p.m. Will Ethernet Win in the Data Genter?

Technology battles that involve Ethernet usually don't favor the other competitors — ATM and token ring. But Ethernet in the data center still faces challenges from InfiniBand, Fibre Channel and proprietary interconnect technologies from vendors such as Myrinet, which offer the ultra-low latency required for clustered systems, or servers using Remote Direct Memory Access technology for virtualization. James Metzler, vice president of Ashton, Metzler & Associates, and vendors in the data center (representing the pros and cons of data center Ethernet) debate the issues.

3:30 p.m. to 4:30 p.m. IP Telephony Gotchas

Is your unshielded twisted pair cable high-grade enough to carry voice and data? Is there enough cooling in your wiring closets to accommodate all the power-over-Ethernet and UPS equipment needed to support lights-out VoIP? Is there a chatty protocol on your network that will kill IP voice? Jeff Fried, CTO of VoIP testing equipment maker Empirix, Ken Agress and David Stein from PlanNet Consulting discuss.

THURSDAY MAY 4

11:30 a.m. to 12:30 p.m.

Roundtable: The Future of Wireless

Is wireless LAN technology growing beyond enterprise IT managers' ability to manage, secure and control it? This session, moderated by Rajeev Chand, director of research for wireless at Rutberg & Co., will explore these issues, with input from panelists who watch industry trends (Rachna Ahlawat of Gartner), test products (Newman of Network Test) and deploy the technology in the real world (Vaho Rebassoo, CTO of networking at The Boeing Co.).

10:15 a.m. to 1:15 p.m. Threat and Vulnerability Analysis — The Concept and a Methodology

This session gives details on the latest techniques for assessing the latest threats and vulnerabilities facing your network. The overview gives insight into why attackers go after certain systems and networks and what types of infrastructures are most at risk. With that established, the discussion will shift to what countermeasures users can take to keep their networks and









digital assets safe. Tools, best practices and stories from the field also will be shared in a program led by John Pironti, principal enterprise solutions architect and principal security consultant at Unisys.

1 p.m. to 2 p.m.

Keynote: Andrew Monshaw, general manager, storage systems, IBM Systems and Technology Group

Find out what the road map is for IBM's future in storage from this Big Blue veteran, whose experience at IBM ranges from PCs to mainframes, in domestic markets and Europe. Most recently, he held the CFO position for IBM's \$20 billion Systems and Technology Group.

10:15 a.m. to 11:15 a.m. What are the Big Developments at the Standards Bodies?

Find out what's being developed in the IETF, the IEEE, the International Telecommunication Union and other technology standards bodies, when these standards will appear in products, and how the technology will affect enterprise networks and the Internet. John Roese, CIO/CISO of Enterasys Networks and one of

the coauthors of the IEEE 802.1X standard, presents this session.

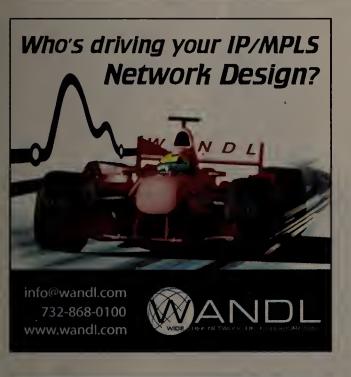
11:30 a.m. to 12:30 p.m. PCI, What Is It and What Do I Need To Do About It?

This has nothing to do with PC or server system buses. The Payment Card Industry standard requires organizations that process and store credit card information to meet certain requirements for infrastructure and application security. The discussion is led by a veteran of enterprise security, Andre Gold, director of information security at Continental Airlines.

8:30 a.m. to 5 p.m. Linux Systems Administration

This all-day workshop will go over how to manage a Linux-based network. Key topics covered include system installation, automation of administrative tasks, configuring software RAID, creating user accounts and how to manage RPM packages. The workshop is taught by Joshua Jensen, Cisco enterprise Linux architect at Cisco Systems, who oversees a large network of Linux clients and servers used by engineers and other employees at the company.

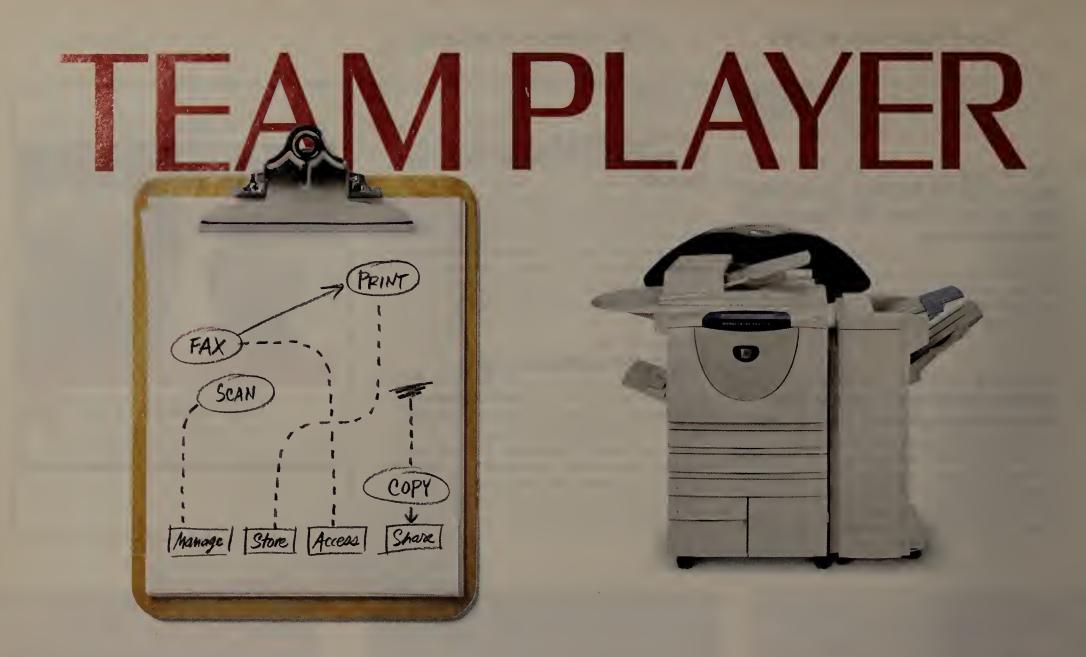












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HOW the BIGGEST NETWORK COMPANIES



EDITOR'S NOTE

Like a rite of spring, the NW200 has marked the industry's ups and downs for the last dozen Aprils. This year's list shows great signs of health, with collective revenue and profits on the upswing. But it also registers the industry's changing dynamics; the new AT&T, for example, has ousted IBM from the No. 1 spot it has held for years. As the biggest companies keep bulking up, we can only wonder what will happen in the year to come. Will they collapse under their own weight or blossom into their full glory? We examine these and other industry questions, beginning on page 60.

— Beth Schultz, editor, Signature Series

The Network World 200

A sector-by-sector analysis. Page 60. Plus:

- THE NW200, ALPHABETICAL LISTING. Page 64.
- THE NW200, COMPANY LIST BY REVENUE. Page 66.
- TERABEAM TOPS THREE FASTEST-GROWTH MEASURES. Page 62.
- FUN FACTS: NW200 metrics compared to miscellaneous facts & figures. Page 64.

grids. Page 74.

NW200 companies in-depth



+Avaya bets on Web services. Allotting 90% of R&D spending to software, Avaya aims to deliver IP telephony features as Web services. Page 72.



+NetApp's bid for grid. NetApp wants to parlay its strong NAS base into a leadership position in storage

+RSA ups the token ante. RSA reaches out to its customers' customers as it pushes authentication into more applications and devices. Page 76.

Network industry analysis

+10 start-ups to watch With cool technologies and growing businesses, these start-ups may one day be eligible for the NW200. Page 78.

+In the private sector These three privately held companies stand out in an industry dominated by public giants and venture-funded start-ups. Page 84.

+Signature Sign-off: CEO secrets. From business meetings in Paris to morning tai-chi, six NW200 CEOs tell us what

makes them tick. Page 88.

Our special Network World 200 coverage continues online, at www.nw200/2006. There you'll find:

NW200 compareo-matic. Use this tool to sort the NW200 list based on your own criteria and compare two or more com-panies side by side. www.nwdocfinder.com/3135

Downloadable NW200 chart. Get the 2006 ranked list of 200 publicly traded network vendors as a PDF www.nwdocfinder.com/3138

Start-ups slideshow. Get to know more about the '06 start ups to watch. www.nwdocfinder.com/3136

Where are they now? Last year's start ups to watch have solidified product strategies, established market presence and other wise continued to make themselves known. This chart marks their progress. www.docfinder.com/3137

Privately held. In the In the private sector fea ture, we profile three com panies. Here's a quick look at four more privately held companies. www.nwdocfind er com. 3134

Mini Q&A. CEO Art Coviello shares his busi NW200 company RSA Security. www.nwdocfind er.com/3122

Leadership insight.

Our CEO secrets piece continues online with input from additional NW200

The Network World 200 is one of six bimonthly supplements providing insights and information on the biggest trends shaping the networked world. Next up is the You Issue, coming July 24, 2006. See all of our Signature Series issues online at www.nwdocfinder.com/3143.

*North America's largest network companies saw collective revenue up 11%, and 70% posted profits.

BYJOHN DIX

we were rating wines instead of network companies, 2005 would go into the books as a fine vintage. Collective revenue for the Network World 200, the largest North American public network companies ranked by revenue, was up 11% to \$919 billion. Profits climbed 16% to \$82 billion. For the first time, some 70% of the companies were profitable. That's higher than 2004, when 65% of the companies on the list were in the black. The norm, over the 12 years of the NW200, typically hovers in the 50% range.

The picture gets even brighter when you narrow the view to the industry's upper echelon, the 63 NW200 companies that have sales of \$1 billion or more. These industry makers account for 96% of sales for the entire NW200, and more than half (36) saw sales climb an impressive 10% or more.

Some of that growth came through acquisition. The most stunning deals last year were SBC's \$16 billion purchase of AT&T, Verizon's \$8.5 billion acquisition of MCI and Sprint's \$36 billion merger with Nextel, but consolidation wasn't limited to telecom.

All told, mergers and acquisitions slashed 29 companies from the NW200 ranks. Other prominent deals included Sun's acquisition of Storage Technology (which was No.42 on the '04 list) and CA's purchase of Concord Communications (No. 154). Others fell off the NW200 last year because they went private, including Enterasys Networks (No. 106), SunGard Data Systems (No. 35) and McLeodUSA (No. 74).

All this activity, coupled with the fact that IPOs are down dramatically, is altering the nature of the list. The companies up top are getting fatter while fewer newcomers are available to fill vacated slots. Whereas the smallest NW200 company last year had \$32 million in sales, this year the No. 200 company reported a mere \$20 million in 2005 revenue.

Slowly but surely, the industry is coalescing around a handful of strong players in four core markets: computing, network infrastructure, software and telecommunications.

Computing

HP guaranteed its spot at the dance with the 2002 \$25 billion merger with Compaq. But while it achieved critical mass with that move, much work remains, says CEO Mark Hurd, who replaced Carly Fiorina early last year.

"In a few cases, there were nine layers of management between the CEO and a cus-



tomer," Hurd says in the company's annual report of the highly matrixed organization he inherited. "And some business divisions had less than 30% of their budgets directly under their control."

The result: slow decision-making and lack of accountability. Hurd laid off 15,000 employees and reorganized the diverse company into seven business units, the core groups including Enterprise Storage and Servers (accounting for 19% of revenue last year), Personal Systems (31%), HP Services (18%) and Imaging and Printing (29%).

Although profits for the year were down 31% to almost \$2.4 billion, sales were up 8% to \$86.6 billion. Bright spots included a 9% increase in revenue for industry standard servers and a 9% increase for the entire Personal Systems group, largely attributed to increased sales of laptops.

While critics say HP has too many balls in the air, Hurd says the diversified nature of the company adds to scale he can leverage to reduce costs. The future, he says, is about automated, lights-out next-generation data centers. "This ... architecture will be about lowering the fundamental unit cost of computing, while increasing computing power and data capacity," he says.

Hurd made a surprising admission about one thing he discovered: "Over the years, HP built a complicated IT architecture that carries unacceptable costs."

What does that say about the company's services business?

The services business, of course, is an IBM hallmark. The company's Global Services group accounts for more than half of IBM's total sales — \$91 billion last year —and 60% of the company's 329,000 employees. But the group stumbled in 2005.

Revenues for Global Services was up only 2% to \$47 billion and the company says it is "seeing a shift to smaller deals of shorter duration." Those deals can be profitable providing the underlying cost structure is competitive, CEO Sam Palmisano says in the company's annual report. "We had to address both our sales model and services cost structure last year."

Total sales for the company were down 5%, caused in part by the 2005 sale of the personal computer business to Lenovo. That sale was central to Palmisano's bid to get IBM out of commodity businesses. "These types of businesses focus on revenue growth, but their models, based on commodity products and services, inherently do not produce superior profit margins," he says.

His goal is to focus on solution sales, but the company couldn't help but crow about the fact that blade server shipments were up 65% last year and mainframe revenue was the highest it has been since 1998. Middleware also now accounts for more than half of IBM's \$16 billion in software revenue. In a bit of soul searching that smacks of 1980's business speak, Palmisano writes in the annual report that IBM "is neither a 'computer company' nor a 'services company'. We are not even 'an IT company'.... IBM 'is an innovation company'."

Whatever IBM decides it is, the focus on higher-value businesses seems to be paying dividends. It generated \$7.9 billion in profits last year, a 9% margin. Dell, by comparison, only earned 6%.

Dell, however, continues to set the pace for top-line growth among the large system companies. Sales for the company's 2006 fiscal year, which ended in February, were up 14% to \$55.6 billion. The \$6.7 billion gain was greater than the annual sales for 176 of the NW200 com-

panies. Although HP generated roughly the same amount of new business, it is \$30 billion larger than Dell.

For the first time ever, Dell last year opened its books to show how its business breaks down. Business sales in the Americas accounted for 51% of revenue, and U.S. consumer sales 14%. Viewed by product line, the major categories are: desktops, 38%; laptops/handhelds, 25%; software and peripherals, 15%; and servers and networking, 10%.

In servers and networking, revenue was up 11% on unit growth of 20%, the company reports.

Net infrastructure

Cisco has always been forthright about the performance of its product segments, but it might come as a surprise that switching accounted for 48% of net product sales (\$10 billion) in fiscal 2005 (ending in July) and routers only 26% (\$5.4 billion).

In fact, Cisco only managed to grow its routing business by 1.7% in that period, whereas switch sales were up 12.5%. "Router sales in fiscal 2005 may have been impacted by new product introductions and increased competition from price-focused competition," the company says.

Cisco's fastest growing unit is Advanced Technologies, the group responsible for VolP, security and optical goods. Sales for the fiscal year were up 32% to \$4.4 billion and the company says it shipped its 6-millionth IP phone.

The company admits, however, that it is being squeezed. Gross margins declined for the fiscal year, Cisco says, primarily because of greater sales of "lower margin products related to switching and home networking." And pressure is coming from all quarters: "We have continued to

encounter price-focused competition, including competitors from Asia and, in particular, China."

Cisco's fiscal year ended in July so the NW200 charts use 12 month (TTM) data to get a calendar year view of the company's performance. TTM data shows sales up 10% to \$25.9 billion and profits up 4% to \$5.6 billion.

That's a far cry from the go-go days of the '90s, and to keep its share price up Cisco has been repurchasing its own stock. Since it began the program in 2001 it has bought back a whopping \$27 billion worth of paper.

At least Cisco's corporate acquisitions result in more tangible gains. The company spent \$8 billion in 2005 to buy 12 companies. The most notable was the uncharacteristically large acquisition of Scientific-Atlanta for \$6.9 billion. This purchase, which won't show up on Cisco's books until 2006, gets Cisco into the market for gear used to deliver converged services to consumers.

One of the Chinese companies that might be giving Cisco trouble is Huawei Technologies, a \$8.2 billion network equipment vendor with 35,000 employees. (Although Cisco has three times the revenue, it only has 3,000 more employees.)

Huawei first became known to domestic buyers when it formed a partnership with 3Com in 2003, a deal that seems to be helping the latter. Although 3Com hasn't posted a profit in the last 24 quarters, revenues are rebounding a bit. Based on TTM data (the company's fiscal year ends in May), sales are up 5% to \$700 million.

3Com says 2005 calendar year revenue for the Huawei partnership reached \$434 million and generated net income of \$16 million. That's up from \$262 million and a net loss of \$15 million in 2004. The next trick for new CEO R. Scott Murray, who was installed in January, will be to push the company back into the black.

Nortel also is counting on fresh blood to get it back into the game. In October, it hired its third CEO in four years, Mike Zafirovski, formerly president and COO of Motorola.

Although Nortel posted a \$2.4 billion loss last year, it largely stemmed from a \$2.4 billion fourth quarter expense to settle a class-action shareholder lawsuit. Revenues were actually up 11% to \$10.9 billion. "We grew our business in 2005 for the first time in five years," Zafirovski reports.

For perspective, however, keep in mind that Nortel bought Bay Networks in 1998 for \$9.1 billion.

One company making hay while the old guard stumble is Juniper. Sales last year were up 54% to \$2 billion (profits were up 161% to \$354 million). That growth was achieved through acquisition — Funk Software, Acorn Packet Solutions, Peribit Networks, Redline Networks and Kagoor Networks — and

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Highest revenue per employee

		IN MILLIONS		
2005 Rank	Company Name	2005 Revenue	FY05 Emp	2005 Rev/Emp
33	Gateway	3,854	1,800	2,141,167
55	Palm	1,408	907	1,552,260
86	Netgear	450	326	1,379,141
15	Apple	16,190	14,800	1,093,919
120	Dot Hill Systems	234	272	859,559
5	Dell*	55,908	65,200	857,485
114	Iomega	265	313	845,048
91	Emulex	426	528	805,871
37	Level 3	3,613	4,600	785,435
145	Datalink	117	150	780,667



the growth of core products.

Last year the company reorganized into three groups: Infrastructure, Service Layer Technologies (SLT) and Service. Sales for Infrastructure, which essentially embodies the

company's router business, were up 40% to \$1.4 billion, while the SLT group, which includes most of the enterprise technologies, was up 23% to \$403 million.

Telecom

Time will tell if all the turmoil in telecom will hurt the chances of Juniper's Infrastructure group pulling a repeat performance in 2006. After all, integrating these giant firms must result in some redundant assets.

At the end of 2004 there were seven major telecom players — AT&T, MCI, Sprint, Verizon, SBC, BellSouth and Qwest — with collective revenues of \$254 billion. It will be down to four players by this time next year — AT&T, Verizon, Sprint and Qwest — or perhaps three, if consolidation continues. It all started with Sprint announcing in late 2004 that it was acquiring Nextel (a deal consummated in '05) for \$36 billion. That seemed to light a fire

under the industry because in January SBC announced it would pay \$16 billion to scoop up AT&T. Not to be out done, Verizon announced in February last year a \$8.5 billion deal to acquire MCl. (Verizon has yet to release consolidated numbers that reflect the MCl acquisition, and MCl didn't report fourth quarter results, so the NW200 numbers are for Verizon only.)

Last month the new AT&T announced plans to acquire BellSouth for \$67 billion, a deal that would create a \$120 billion company with about 300,000 employees.

One of the ironies of consolidation is Verizon/MCI is moving the bulk of its leadership out to AT&T's former headquarters in Basking Ridge, N.J., a huge, lavish building. If he were alive to see it, this would have brought a smile to longtime AT&T gadfly Bill McGowan, who was CEO of MCI during its formative years.

It will be interesting to see what kind of business service innovation, if any, comes out of the SBC/AT&T and Verizon/MCl deals. For the next few years both firms will be distracted by efforts to ratchet up their wireless fortunes and secure their positions in broadband.

Consider developments now driving decision making at Verizon:

- The company added 7.5 million new wireless customers last year to reach 51 million, pushing revenue up 17% to \$32 billion, which is 43% of the company's total revenue.
- The push now is to get more customers to use wireless data services. The company has 24 million data customers, up 43%, and data service revenue last year reached \$2.2 billion. Although Verizon is still building it out, the company says its 3G EV-DO high-speed data network already serves 180 major metropolitan areas.
- Verizon added 613,000 broadband connections last year (DSL and its new FiOS fiber to the home service), bringing the company's broadband connections to 5 million, up 48% from last year. The FiOS plant, which passes 3 million homes today, will enable Verizon to offer cable TV services. Ultimately cable TV represents a market opportunity worth about \$29 billion in the geographic footprint the company serves, the company says.

Software

In the world of software, at least one company seems to share the telecom giants' belief that consolidation is inevitable and the bigger fish will win: Oracle.

Oracle finished its long, hostile takeover of PeopleSoft in January last year, and went on to make 12 more acquisitions, roughly one a month. Some of the assets acquired will help Oracle address vertical markets, such as retail and banking, while others fill in technology gaps. Buying Oblix, for example, gives Oracle an identity management tool for this increasingly important requirement.

While Oracle has yet to integrate and account for all the new assets, the company's revenue was up 22% on a TTM

See Analysis, page 64

+Terabeam grabs fastest-growth spots

Parent company of Proxim and Ricochet has achieved fast success as a wireless turnaround specialist — landing on the NW200 list at No. 175.

by acquiring and turning around financially troubled wireless companies. In July 2005, with the \$24 million purchase of bankrupt Proxim, the company skyrocketed into the big league. The newly named Terabeam, with \$59 million in '05 revenue, landed at No. 175 on the NW200 list. It also landed on the fastest-growing charts in all three major growth measures: No. 1 for five-year (136%), No. 2 for one-year (157%) and No. 1 for employee (136%) growth.

Interestingly, too, it grabbed Proxim out from under Moseley Associates after Moseley had announced an agreement to purchase the failed Wi-Fi equipment provider. "We came in and basically, at the auction [mandated by bankruptcy law], outbid Moseley," recounts Robert Fitzgerald, CEO of Terabeam.

The move was a classic for Fitzgerald, who had been a mergers-and-acquisitions lawyer before becoming CEO in 1999 of YDI Wireless' predecessor, Young Design. After joining Young, he immediately merged the company with Telaxis Communications, a prebubble Wall Street darling that had \$1 billion market cap but was heavily in the red, to form YDI Wireless. By the summer of 2004, YDI had rebounded from Telaxis' weak financials and Fitzgerald had overseen the acquisition of three more wireless companies: KarlNet, Terabeam and Ricochet Networks (the latter reincarnated from the remnants of ISP Metricom, which had burned through more than \$1 billion in cash before its demise, Fitzgerald says).

Today, the new Terabeam is a holding company of two units, Proxim and Ricochet, and Fitzgerald acts as CEO of all three. LAN gear, WAN equipment and ISP services each provide about one-third of Terabeam's revenue stream. The Proxim group offers wireless equipment — including Young's original line-of-sight microwave gear. Ricochet provides wireless Internet access to about 10,000 customers in Denver and San Diego, but equally important, gives Terabeam several key wireless mesh patents, Fitzgerald says. Wireless mesh and WiMAX are the company's targeted growth areas. Its newfound size also has allowed Terabeam a beefier budget for internal R&D. It will spend about \$14 million, or 13% of current revenue, on developing WiMAX and mesh gear. And Fitzgerald remains on the prowl for the next troubled wireless company.

Julie Bort

+Fastest-growing NW200 companies, 2001 to 2005

Company	2005 revenue (\$M)	'01-'05 CAGR %	NW200 rank
Terabeam	59	136%	175
NetWolves	25	106%	197
SafeNet	263	95%	115
FalconStor	41	64%	190
Network Engines	98	64%	154

+Fastest-growing NW200 companies, 2004 to 2005

Company	2005 revenue (\$M)	Revenue '04-'05 % change	NW200 rank
AT&T	117,749	188%	1
Terabeam	59	157%	175
Vasco Data Security	55	83%	178
Globix	111	75%	147
Apple	16.190	66%	15

+Fastest employee growth, 2004 to 2005

Company	No. of employees, '05	% change in employees, '04-'05	NW200 rank
Terabeam	290	136%	175
Smith Micro Software	100	92%	200
Zhone Technologies	520	90%	135
Adobe	5,734	82%	45
lxia	640	59%	132



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Apalysis continued from page 62

basis to \$12.8 billion.

Profits were actually down 2% (presumably because of some of the acquisitions) to \$2.8 billion, but even with that dip Oracle still mustered a profit margin of 22%. While

impressive, that doesn't hold a candle to Microsoft's 32% margin.

for the fourth year in a row, Microsoft generated more profits (on a TTM basis) than any other company on the NW200, including companies twice its size. In fact, Microsoft's \$13 billion in net income is close to the combined profits of IBM, HP and Dell.

Microsoft isn't known for acquisitions, but it does make a handful a year and one of the more meaningful ones last year was of Groove Networks. Besides getting its hands on Groove's peer-to-peer collaboration technology, which it is building into various office tools, Microsoft captured Ray Ozzie, one of the creators of Lotus Notes. Ozzie became CTO reporting to Bill Gates.

While 2006 is still young, consolidation across the industry continues. Oracle, for example, has scooped up Siebel Systems (No. 54 in '04) and Alcatel plans to merge with Lucent (No. 23). By this time next year we might be down to the Network World 100.

The NW200 compare-o-matic ontine and use this tool to sort the NW200 list based on your own criteria and compare two or more companies side by side. www.nwdocfinder.com/3135

151

25

157

NW200 Comparisons

IBM employs a small city ...

329,001 = IBM worldwide employees 313,619 = Population of Toledo, Ohio

Microsoft stockpiles a whole lot of cash ...

\$34.7 billion = Microsoft's cash horde \$28.5 billion = The U.S. Department of Housing and Urban Development (HUD) 2006 operating budget

MRV Communications

MTI Technology

Neoware Systems

NaviSite

NCR

Verizon owes more than Australia ...

\$31.8 billion = Verizon's long-term debt \$30 billion = Approximate 2005 credit card debt for consumers in Australia

(SOURCE, RESERVE BANK OF AUSTRALIA)

The NW200 nets what

Americans spend online ...

\$82 billion = NW200 2005 profits \$82.3 billion = U.S. online retail sales for 2005

Canada is only slightly more

revenues mestic Product of

+The Network World 200, A to Z

	0.0		The state of a Date O state of
74	3Com	14	Electronic Data Systems
189	ActivIdentity	177	Embarcadero Technologies
150	Actuate	21	EMC
98	Adaptec	91	Emulex
62	ADC Telecommunications	155	Entrust
45	Adobe Systems	108	Epicor Software
82	Adtran	122	Equinix
85	Advanced Digital Information	160	Exabyte
27	Advanced Micro Devices	96	Extreme Networks
141	Agile Software	106	F5 Networks
111	Akamai Technologies	190	FalconStor
164	Aladdin Knowledge Systems	92	FileNet
22	Alltel	103	Finisar
127	Altiris	95	Foundry Networks
43	American Power Conversion	33	Gateway
34	Anixter	44	Global Crossing
15	Apple	147	Globix
104	Ariba	186	GoRemote
1	AT&T	38	Harris
30	Avaya	3	HP
192	Avici	119	Hummingbird
97	Avocent	176	Hypercom
	AXS-One		**
195		73	Hyperion Solutions
60	BEA Systems Belden CDT	100	i2 Technologies
56	2014011 022	2	IBM
13	BellSouth	113	Informatica
143	Blue Coat Systems	8	Intel
52	BMC Software	172	Interactive Intelligence
112	Borland Software	167	Interland
68	Broadwing	69	Intermec
80	Brocade	133	Internap Network Services
161	Captaris	101	Internet Security Systems
79	Check Point Software	196	Interphase
90	Ciena	89	Inter-Tel
11	Cisco	152	Intervoice
66	Citrix Systems	128	Interwoven
67	Cognos	114	Iomega
12	Comcast	130	iPass
57	CommScope	39	Iron Mountain
35	CA	132	Ixia
16	Computer Sciences	138	j2 Global Communications
59	Compuware	40	Juniper
65	Comverse Technology	179	Keynote Systems
88	Covad	183	Lantronix
171	Critical Path	99	Lawson Software
145	Datalink	37	Level 3
199	Datawatch	29	Lexmark
5	Dell	23	Lucent
140	Digi	131	Manugistics Group
123	Digital River	32	Maxtor
163	Decucorp	64	McAfee
120	Dot Hill Systems	77	McData
58	EarthLink	7	Microsoft
00	AREA DICEOTIN	-	MICLOSOIC

Motorola

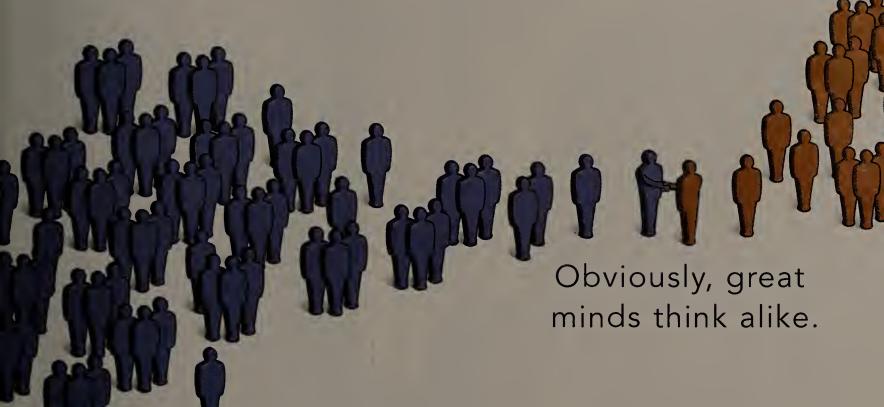
Easylink Services

		Canada	IS OHE	v snym
6	Netgear	product		
29	NetIO	\$919 billio		
38	NetManage			
53	Netopia	\$979.8 bil		ross Dor
58	NetScout Systems	Canada, 2		
97	NetWolves	(SOURCE: MOST CU	RRENT WORLD I	BANK STATS, REI
9	Network Appliance	-		
54	Network Engines		_	
65	Network Equipment		117	Serena
	Technologies		54	Siebel
3	Nextel Partners		149	Sierra
)	Nortel Networks		76	Silicon
1	Novell		200	Smith
18	Nuance Communicati	ions	139	SonicV
74	Onyx Software		125	Sonus
3	OpenText		156	Spectr
70	Opnet Technologies		10	Sprint
73	Opsware		72	SSA Gl
3	Oracle		109	Standa
21	Overland Storage		193	SteelC
16	Packeteer		144	Steller
5	Palm		19	Sun
2	Perot Systems		71	Sybase
35	Pervasive Software		162	Sycam
59	Phoenix Technologies		36	Syman
3	Polycom		50	Symbo
3	Premiere Global Serv	ices	63	Tektro
12	Printronix		47	Tellabs
1	Progress Software		175	Terabe
1	Ologic		87	Tibco S
3	Qualcomm		6	Time V
98	Qualstar		182	Tumble
)	Quantum		28	Unisys
1	Quest Software		191	VA Sof
7	Qwest		178	Vasco I
69	Raindance		184	Verilin
)2	RealNetworks		51	VeriSig
16	Red Hat		4	Verizo
34	Redback Networks		126	Vignet
3	Research in Motion		180	Vitria :
)5	RSA Security		187	Vodavi
31	Saba Software		168	Watch
15	SafeNet		107	WebEx
5	Savvis Communicatio	ns	124	webMe
	Scientific-Atlanta		136	Webser
1	Seagate		31	Wester
1 8	Secure Computing		53	XO Cor
94	Segue Software		135	Zhone
	_			

2004 CURRENT WORLD	BANK STATS, RELEASED JULY 2005)
117	Serena Software
54	Siebel Systems
149	Sierra Wireless
76	Silicon Graphics
200	Smith Micro Software
139	SonicWall
125	Sonus Networks
156	SpectraLink
10	Sprint-Nextel
72	SSA Global Technologies
109	Standard Microsytems
193	SteelCloud
144	Stellent
19	Sun
71	Sybase
162	Sycamore Networks
36	Symantec
50	Symbol Technologies
63	Tektronix
47	Tellabs
175	Terabeam
87	Tibco Software
6	Time Warner
182	Tumbleweed
28	Unisys
191	VA Software
178	Vasco Data Security
184	Verilink
51	VeriSign
4	Verizon
126	Vignette
180	Vitria Technology
187	Vodavi Technology
168	WatchGuard
107	WebEx Communications
124	webMethods
136	Websense
31	Western Digital
53	XO Communications

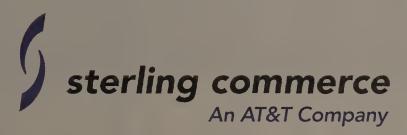
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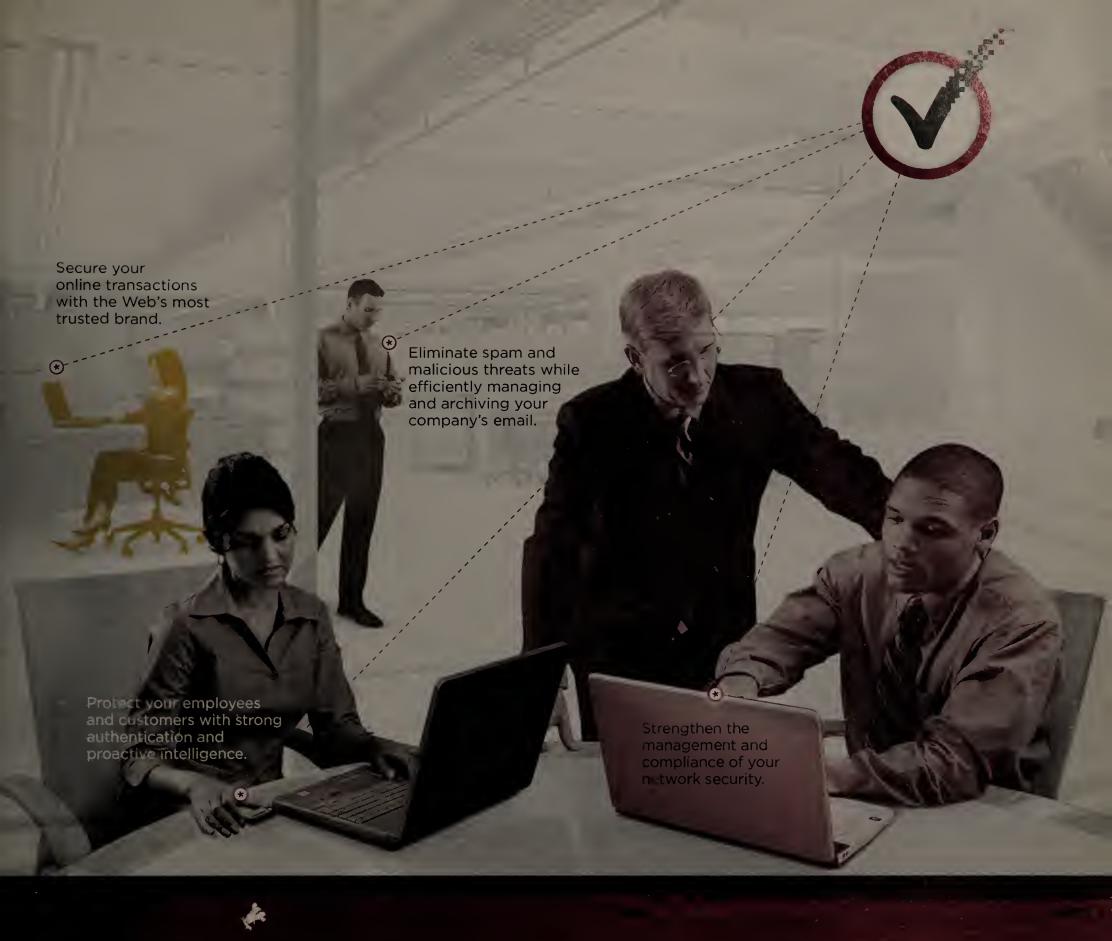
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Rank		Company name	2905 re	'04-'05 % 0	'01-'05 CAGR	2005 Profi	profit/loss t SM	'04-'05 % 0	'01-'05 CAGR	% of rev.	Market cap SM**	Cash & invest \$M	Long- term debt \$M	Number 2005	of employe '04-'05 % 0		Rev. per employee (SK)	Ticker	FY ends	Year inc.
1		AT&T	117,479		26%	6	6,940	18%	-1%	6%	160,320	2,123	52,659	-	-	-	-	T	0ec	1983
2	1	IBM	91,134	-5%	1%	3	7,934	-6%	1%	9%	130,650	13,686	15,425	329,001	-11%	-3%	277,002	IBM	0ct	1911
3		HP	86,696		18%	12	2,398	-31%	56%	3%	93,820	31,911	3,392	150,000	-1%	15%	577,973	HPQ	0ec	1947
4		Verizon***	75,112	5%	3%	4	7,397	-6%	109%	10%	102,350	3,274	31,869	216,704	4%	-3%	346,611	VZ	0ec	1983
5		Oell****	55,908		16%	8	3,572	17%	-27%	6%	69,350	9,058	504	65,200	18%	17%	857,485	DELL	Jan	1987
6	-	Time Warner	43,652		3%	10	2,905	-14%	15%	7%	75,110	4,220	20,238	87,850	3%	0%	496,892	TWX	Dec	2001
(Microsoft	41,359	7%	13%	2	13,057	31% 15%	61%	32%	279,100 114,000	34,701 12,772	0 106	61,000	7% 18%	6%	678,016 388,649	MSFT	June	1975 1968
8 q		Intel Motorola	38,826 36,843		10% 5%	7	8,664 4,578	199%	- 01/0	22% 12%	55,460	3,918	2,106 3,806	99,900 68,000	0%	5% -12%	541,809	MOT	Oec Oec	1928
10		Sprint-Nextel	34,680		20%	14	1,785	-		5%	75,220	10,665	20,632	79,900	33%	-12% -1%	434,043	S	0ec	1938
11		Gisco	25,946		4%	5	5,581	4%	_	22%	131,380	14,989	0	38,413	13%	0%	675,448	CSC0	July	1984
12		Comcast	22,255		23%	20	928	-4%	11%	4%	36,210	841	21,682	80,000	8%	20%	278,188	CMCSA	0ec	2001
13		BellSouth	20,547		-4%	9	3,294	-31%	6%	16%	62,860	427	13,079	63,066	0%	-8%	325,802	8LS	Dec	1983
14		Electronic Oata Systems	19,757	-4%	-2%	45	150	-5%	-42%	1%	14,180	3,243	2,952	119,000	2%	-4%	166,025	EOS	0ec	1962
15		Apple	16,190	66%	32%	15	1,605	463%	~	10%	51,070	8,707	0	14,800	10%	11%	1,093,919	AAPL	Sept	1977
16	17	Computer Sciences	14,529	-4%	8%	22	846	44%	38%	6%	10,550	773	1,322	78,000	-13%	3%	186,269	CSC	Mar	1959
17	18	Qwest	13,903	1%	-8%	198	-779		-	-	12,950	947	14,968	39,348	-5%	-10%	353,334	Q	0ec	1997
18		Oracle	12,888	22%	4%	11	2,878	-2%	3%	22%	71,180	3,403	156	49,872	20%	4%	258,422	ORCL	May	1986
19		Sun	11,664	4%	-11%	188	-122				17,200	2,449	593	31,000	-11%	-8%	376,258	SUNW	June	1982
20		Nortel Networks	10,946	11%	-11%	200	-2,400	-		-	12,700	2,950	2,300	30,000	-12%	-13%	364,867	NT	0ec	1914
21	25	EMC	9,664	17%	8%	17	1,133	30%	C0/	12%	32,410	3,938	127	26,500	17%	7%	364,679	EMC	0ec	1979
22	24	Alltel	9,487	15%	6%	16	1,331	27%	6%	14%	24,880	989	5,783	21,373	15%	-3%	443,878	AT	0ec	1983
23 24	23 26	Lucent	9,153 8,536	0% 39%	-19% 9%	21 18	907	-7% 230%		10%	13,680 11,930	2,154 1,751	5,049	30,500 44,000	-4% 10%	-21%	300,098	LU	Sept	1995 2000
25	27	Seagate NCR	6,028	1%	0%	25	529	82%	25%	9%	7,110	810	305	28,200	-1%	-2%	194,000 213,759	NCR	June Oec	1884
26	30	Qualcomm	6,024	20%	22%	13	2,250	20%	-	37%	81,740	6,984	0	9,300	22%	9%	647,742	QCOM	Sept	1985
27	00	Advanced Micro Oevices	5,848	17%	11%	43	166	81%		3%	17,430	1,794	1,327	9,860	-38%	-9%	593,063	AMO	Oec Oept	1969
28	28	Unisys	5,759	-1%	-1%	199	-1,732	-	-	-	2,390	643	1,049	36,100	-1%	-2%	159,521	UIS	0ec	1986
29	29	Lexmark	5,222	-2%	6%	29	356	-37%	7%	7%`	4,980	889	150	14,000	4%	2%	372,964	LXK	Dec	1990
30	31	Avaya	5,003	18%	-7%	19	961	203%	-	19%	5,570	726	1,602	18,550	24%	-5%	269,704	AV	Sept	2D0D
31	37	Western Digital	3,987	22%	20%	36	285	52%	-	7%	4,210	645	32	23,161	33%	31%	172,156	WDC	June	1970
32	32	Maxtor	3,890	2%	1%	81	43	-	-	1%	2,30D	565	576	15,085	10%	11%	257,885	MXD	Dec	1982
33	34	Gateway	3,854	6%	-11%	76	50	-	-	1%	875	586	300	1,800	-5%	-40%	2,141,167	GTW	Dec	1986
34	38	Anixter	3,847	17%	5%	56	90	16%	31%	2%	1,800	22	625	6,800	21%	9%	565,794	AXE	Dec	1967
35	36	CA	3,733	9%	-3%	38	212	108%	-	6%	15,720	1,833	1,810	15,300	0%	-4%	243,987	CA	Mar	1974
36		Symantec	3,618	49%	43%	44	158	-70%	25%	4%	16,700	2,840	36	6,500	23%	14%	556,615	SYMC	Mar	1982
37	33	Level 3	3,613	-3%	24%	197	-638	4507	740/	-	3,480	704	0	4,600	2%	0%	785,435	LVLT	Dec	1985
38	39	Harris Iron Mountain	3,195	10%	13%	40	197	15%	74%	6%	6,100	278	700	12,600	16%	6%	253,595	HRS	June	1926
39 40	55	Juniper	2,078	14% 54%	15% 24%	53 30	111 354	18% 161%	<u> </u>	5% 17%	5,420 10,830	0 1,429	2,5D0 460	15,800 4,145	9% 41%	9% 36%	131,519 497,949	JNPR	Dec Dec	1951 1996
41	45	Scientific-Atlanta	2,004	12%	-6%	39	210	-11%	-11%	11%	6,650	1,423	6	7,652	2%	-2%	261,605	SFA	June	1951
42	46	Perot Systems	1,998	13%	13%	52	111	18%	-	6%	1,840	260	0	18,10D	14%	22%	110,403	PER	Dec	1988
43	48	American Power Conversion	1,980	16%	8%	46	144	-21%	6%	7%	4,390	774	0	7,580	17%	5%	261,148	APCC	Dec	1981
44	40	Global Crossing	1,968	-21%	-14%	195	-354	-	-	-	548	224	463	3,400	-6%	-	578,824	GL8C	Dec	1997
45	49	Adobe Systems	1,966	18%	12%	24	603	34%	31%	31%	21,940	1,701	0	5,734	82%	17%	342,919	AD8E	Nov	1982
46	62	Research in Motion	1,909	65%	60%	28	361	40%	-	19%	15,530	915	7	4,000	-	20%	477,350	RIMM	Feb	1984
47	58	Tellabs	1,883	53%	-4%	41	176		-	9%	6,910	1,190	D	3,609	-13%	-16%	521,862	TLA8	Dec	1975
48		Nextel Partners	1,802	32%	48%	23	605	1026%	-	34%	8,310	165	1,227	2,900	0%	11%	621,276	NXTP	Dec	1998
49		Network Appliance	1,796	-6%	16%	37	254	-7%	36%	14%	13,09D	1,110	0	3,801	34%	12%	472,507	NTAP	April	1992
50	47	Symbol Technologies	1,766	2%	5%	92	32	-61%	-	2%	2,700	139	45	5,220	-3%	-2%	338,238	S8L	Dec	1975
51	60	VeriSign	1,610	38%	13%	26	407	118%	12%	25%	5,75D	855	D	4,000	25%	5%	402,375	VRSN	Dec	1995
52	50	8MC Software	1,486	1%	D%	64	66	-16%	1270	4%_	4,680	862	0	6,000	-13%	-5%	247,600	BMC	Mar	198D
53 54	54	XD Communications Siebel Systems	1,434 1,429	1D% 7%	3% -9%	191 62	-147 70	-37%	-28%		499 5,610	184 2,39D	3D1	4,500 4,686	-10% -7%	-9%	318,578 304,972	X0H0.08 SE8L	Dec	1994 1993
55	61	Palm	1,429	21%	-3%	34	301	523%	-	21%	2,05D	437	35	907	30%	-11% -9%	1,552,260	PALM	Dec May	1992
56	66	8elden CDT	1,400	40%	10%	79	48	213%	11%	4%	1,15D	135	172	6,100	-10%	-9% 5%	221,656	8DC	Dec	1988
57	63	CommScope	1,337	16%	16%	75	50	-34%	9%	4%	1,630	249	284	4,40D	0%	9%	303,900	CTV	Dec	1997
58	52	Earthlink	1,290	-7%	1%	47	143	29%	-	11%	2,720	422	D	1,700	-18%	-29%	758,882	ELNK	Dec	1994
54	57	Compuware	1,215	-3%	-12%	51	115	38%	-1%	9%	3,110	830	0	7,908	-9%	-12%	153,591	CPWR	Mar	1973
60	64	8EA Systems	1,200	11%	5%	48	143	9%		12%	5,660	1,453	229	3,878	16%	6%	309,386	8EAS	Jan	1995
61	59	Novell	1,198	3%	4%	27	377	559%	-	31%	2,960	1,655	60D	5,066	-18%	-6%	236,419	NOVL	Oct	1983
62	59	ADC Telecommunications	1,169	51%	-14%	54	111	575%	-	9%	3,070	445	400	8,185	9%	-9%	142,847	ADCT	Dct	1953
_63	750 T 7400	Tektronix	1,006	-1%	-5%	59	79	-23%	-13%	8%	2,910	233	D	4,334	13%	-3%	232,D72	TEK	May	1946
64		McAfee	987	8%	4%	49	140	-38%	-	14%	4,140	1,257	D	2,950	0%	-5%	334,678	MFE	Dec	1997
55	-	Comverse Technology	959	25%	-6%	68	57	-	-31%	6%	4,850	2,247	420	5,050	8%	-6%	189,989	CMVT	Jan	1984
86 en	-	Citrix Systems	909	23%	13%	42	166	26%	12%	18%	6,360	503	31	2,700	2%	9%	336,556	CTXS	Dec	1989
- 57	13	Cornos	881	14%	15%	50	135	5%	20%	15%	3,410	483	D	3,50D	6%	7%	251,629	COGN	Feb	1969

TRAILING 12 MONT S FOR FISCAL YEARS NOT ENDING IN NOVEMBER, DECEMBER OR JANUARY, "CAPTURED MARCH 27, 2006, ""COMPANY HAS NOT RELEASED NUMBERS REFLECTING MCI ACQUISITION "" FISCAL "OF NUMBERS FOR PERIOD ENDING FEB. 3, 2006



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THE MINUS	4, 2000 - 1111 11 5020 11111	.00/ 2000/							. 110										
		2005	revenue			profit/loss		104 105				Long-	Number	of employ		Rev. per			
Park ann	0	cu+	'04-'05	'01-'05	Profit		'04-'05	'01-'05 CAGR	% of	Market	Cash &	term	2005	'04-'05 % 0	'01-'05	employee	Ticker	FY	Year
2005 2004		\$M*	% 0	CAGR	rank	SM	% 0	UAUN	rev.	cap SM**	invest SM	debt SM	2005		CAGR	\$K		ends	inc.
68 76		879	31%	47%	190	-133				1,120	109	21	1,630	-2%	17%	539,325	8WNG	Dec	1997
69	Intermed	876	8%	-13%	65	65	-		7%_	1,960	257	100	2,500	-44%	-22%	350,200	IN	Dec	1997
79 72	! Quantum	869	14%	-11%	174	-22	-		-	721	232	160	2,500	38%	-4%	347,440	OSS	Mar	1980
71 70	Sybase	819	4%	-3%	58	86	26%		10%	1,890	866	0	4,000	12%	-4%	204,675	SY	Dec	1984
72	SSA Global Technologies	723	6%	52%	93	27	39%	-	4%	1,150	94	215	3,510	-5%	37%	205,926	SSAG	July	1981
73 84	Hyperion Solutions	722	6%	9%	63	68	25%	-	9%	1,940	425	0	2,607	5%	3%	276,870	HYSL	June	1981
74 77	3Cem	700	5%	-29%	192	-164	-	-	-	2,000	754	0	1,850	-4%	-31%	378,216	COMS	May	1979
75 79	Savvis Communications	667	8%	29%	185	-69	-	-	-	233	61	275	2,124	14%	39%	314,030	SVVS	0ec	1998
76 78		646	-21%	-23%	186	-100		-		0	113	293	2,423	-9%	-20%	266,405	SGI	June	1981
77 93	The state of the s	614	54%	16%	179	-31		-	-	558	310	170	1,447	44%	13%	424,603	MCDTA	Jan	1982
78 82		581	7%	11%	67	63	77%		11%	1,920	278	0	1,636	14%	7%	354,951	PLCM	Dec	1990
		579	12%	2%	32	320	29%	0%	55%	4,890	1,351	0	1,400	4%	4%	413,857	CHKP	Dec	1993
								98%											_
80 80		574	-4%	3%	82	43	40007		8%	1,730	392	13	1,160	12%	2%	494,914	BRCD	Oct .	1995
81 81	Qlogic	521	-6%	10%	35	297	102%	44%	57%	3,140	719	0	847	3%	8%	614,876	QLGC	Mar	1992
82 86		513	13%	7%	55	101	35%	56%	20%	2,130	267	50					ADTN	0ec	1985
83 87	Premiere Global Services	498	11%	4%	80	47	13%	-	10%	582	21	100	2,200	-1%	0%	226,136	PGI	0ec	1991
84 95	Quest Software	476	22%	18%	84	42	-11%		9%	1,650	195	0	2,700	20%	13%	176,444	QSFT	0ec	1987
85 88	Advanced Digital Information	on 454	0%	6%	102	14	86%	-	3%	536	253	0	1,109	-3%	4%	409,558	ADIC	0ct	1983
86 99	Netgear	450	17%	24%	91	34	43%	-	7%	629	0	0	326	21%	34%	1,379,141	NTGR	Dec	1996
87 97	Tibco Software	446	15%	9%	61	73	62%	-	16%	1,790	478	48	1,505	11%	11%	296,279	TI8X	Nov	1985
88 89		443	3%	7%	166	-16	-	-	-	604	97	125	1,045	-8%	-7%	424,115	DVW	Dec	1996
89 91		443	6%	4%	100	18	-32%	9%	4%	573	168	0	1,800	-11%	2%	246,056	INTL	0ec	1969
90 108		427	43%	-28%	196	-436	02/0	-	7/0	3,000	952	649	1,497	-9%	-21%	285,438	CIEN	Oct	1992
									100/			043							
91 107		426	22%	15%	60		0707		18%	1,440	566		528	1%	13%	805,871	ELX	June	1979
92 94		422	6%	6%	85	40	37%	-	10%	1,130	384	0	1,750	9%	0%	241,029	FILE	0ec	1982
93 98		418	8%	30%	137	0	-99%	-59%	0%	793	87	13	2,241	6%	18%	186,479	OTEX	June	1991
94 104	Progress Software	405	12%	12%	77	49	52%	29%	12%	1,180	266	2	1,500	-3%	2%	270,267	PRGS	Nov	1981
95 92	! Foundry Networks	404	-1%	7%	70	56	17%	110%	14%	2,430	746	0	732	11%	5%	551,776	FORY	Dec	1996
96 100	Extreme Networks	379	1%	-6%	108	9	-42%	-	2% `	627	367	0	834	0%	-4%	454,077	EXTR	June	1996
97 103	Avocent	370	1%	10%	78	48	165%	-	13%	1,560	294	0	599	-34%	0%	617,529	AVCT	Dec	2000
98 85	Adaptec	348	-28%	-12%	193	-305	-	-	-	684	534	237	1,525	1%	-6%	228,197	ADPT	Mar	1981
99 105		346	-3%	-3%	97	20	654%	8%	6%	773	260	0	1,400	-11%	-10%	247,429	LWSN	May	1975
100 96	·	337	-7%	-24%	57	87	-		26%	355	113	76	1,257	-39%	-28%	267,940	ITWO	0ec	1988
101 111	Internet Security Systems	330	14%	10%	87	39	46%		12%	1,110	239	0	1,200	0%	0%	274,833	ISSX	Dec	1994
			22%	15%		312			96%	1,320	781	100		_		355,301	RNWK		1994
102 116		325			33				90%				915	11%	3%			0ec	
103 117	Finisar	316	20%	14%	188	-106				1,480	99	236	2,580	-9%	36%	122,597	FNSR	Apr	1987
104 112		312	12%	-7%	195	-307				751	123	0	1,506	-11%	8%	207,371	AR8A	Sept	1996
105 110	RSA Security	310	1%	2%	83	42	21%	-	14%	1,270	188	0	1,100	-4%	-3%	281,909	RSAS	Dec	1986
106 131		310	59%	30%	69	57	46%		18%	2,840	259	0	792	29%	13%	390,783	FFIV	Sept	1996
107 119	WebEx Communications	308	24%	59%	74	53	10%	-	17%	1,560	197	0	2,000	10%	42%	154,200	WE8X	Dec	1995
108 122	! Epicor Software	291	29%	14%	72	54	114%	-	19%	647	53	125	2,000	42%	20%	145,550	EPIC	0ec	1987
109 127	Standard Microsytems	289	40%	16%	117	6	-30%	-1%	2%	572	142	0	560	0%	7%	516,786	SMSC	Feb	1971
110 114	MRV Communications	284	4%	-4%	169	-16	-	-	-	432	68	23	1,330	0%	-12%	213,308	MRVC	0ec	1988
111 126	Akamai Technologies	283	35%	15%	31	328	854%	-	116%	4,400	292	0	784	30%	-2%	361,097	AKAM	0ec	1998
112 109		277	-11%	6%	177	-29	-		-	402	175	0	1,282	-6%	3%	215,835	80RL	0ec	1983
113 124		267	22%	8%	89	34			13%	1,340	262	0	1,000	19%	5%	267,400	INFA	0ec	1996
114		265	-20%	-25%	175	-23			1070	161	96	0	313	-32%		845,048	IOM	0ec	1980
	lomega SafoNot						0004	<u> </u>	00/						-38%				
115 129		263	31%	95%	123	4	86%		2%	634	343	250	885	9%	59%	297,514	SFNT	0ec	1983
116 134		257	46%	34%	66	64	66%	1007	25%	5,110	668	570	959	2%	11%	268,092	RHAT	Feb	1993
117	Serena Software	256	23%	27%	88	36	282%	18%	14%	993	209	370	744	0%	23%	343,817	SRNA	Jan	1980
118	Nuance Communications	247	29%	40%	162	-13	-	-		1,670	71	0	1,112	34%	24%	222,482	NUAN	Sept	1992
119 123		244	9%	4%	143	-2	-		-	421	86	0	1,504	5%	4%	162,434	HUMC	Sept	1984
120 120	Oot Hill Systems	234	-2%	43%	94	27	129%	-	11%	302	122	0	272	8%	4%	859,559	HILL	0ec	1999
121 121	Overland Storage	233	-1%	11%	150	-6	-	-	-	125	70	0	335	-10%	2%	694,925	OVRL	June	1980
122 138	B Equinix	221	35%	37%	183	-43	-	-	-	1,660	189	240	537	15%	19%	411,732	EQIX	0ec	1998
123 140	Oigital River	220	43%	40%	71	54	54%	-	25%	1,680	352	195	720	-1%	6%	306,111	ORIV	0ec	1994
124 130		202	-1%	1%	125	4	-	-	2%	430	149	0	833	-3%	-2%	242,857	WEBM	Mar	1996
125	Sonus Networks	195	14%	11%	109	8	-66%	-	4%	1,220	156	0	719	34%	5%	270,654	SONS	0ec	1997
126 133		191	7%	-10%	96	20	- 5070		11%	433	197	0	738	1%	-14%	258,401	VIGN	Dec	1995
127 135		188	13%	53%	121	5	-73%		2%	619	153	0	878						
						1	-10%							17%	31%	213,667	ATRS	0ec	1996
128 139	Management Salaman Communication Communicati	175	9%	-4%	135	1	-		0%	385	137	0	744	7%	-5%	235,215	IWOV	0ec	1995
129 115		171	-37%	1%	111	8	-		5%	438	185	0	1,006	-24%	-2%	170,378	NTIQ	June	1995
130 136		169	2%	34%	104	13	-32%		8%	477	185	0	425	6%	-	398,588	IPAS	Dec	1996
131128	Manugistics Group	168	-19%	-14%	180	-33	-	-	-	181	124	0	763	-17%	-14%	219,659	MANU	Feb	1986
182	lxia	159	36%	20%	90	34	78%	37%	21%	957	176	0	640	59%	33%	248,906	XXIA	Dec	1997
	2 Internap Network Services	154	6%	7%	149	-5	-	-	~	323	41	13	334	-10%	-11%	460,180	IIP	Dec	1996
134 148	B Redback Networks	153	33%	-9%	173	-22	-	-	-	1,140	44	2	500	12%	-12%	306,600	R8AK	0ec	1996
34.1																			

MALL 1 17 4 WINS FOR VISCAL YEARS NOT ENDING IN NOVEMBER, DECEMBER OR JANUARY, "CAPTURED MARCH 27, 2006.



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			2005	revenue		2005 p	rofit/loss						Long-	Numbe	r of employs	ees	Rev. per			
2005	2604	Сотрану нате	SM*	'04-'05 % 0	'01-'05 CAGR	Profit rank	SM	'04-'05 % 0	'01-'05 CAGR	% of rev.	Market cap SM**	Cash & invest SM	term debt SM	2005	'04-'05 % 0	'01-'05 CAGR	employee SK	Ticker	FY ends	Year inc.
135	2001	Zhone Technologies	152	56%	3%	189	-127	-	-	-	407	71	30	520	90%	-1%	291,923	ZHNE	Dec	1999
136	152	Websense	149	33%	43%	86	39	48%	88%	26%	1,280	320	0	606	21%	24%	245,215	WBSN	Dec	1994
137	146	MTI Technology	147	22%	6%	170	-17	-		-	49	21	0	341	34%	-3%	430,205	MTIC	Mar	1981
138	153	j2 Clobal	144	35%	44%	73	53	68%	-	37%	1,060	113	0	275	36%	20%	523,273	JCOM	Dec	1995
139	145	SonicWall	135	8%	5%	116	6	-		5%	467	240	0	404	21%	-2%	334,901	SNWL	Dec	1991
140	149	Digi	133	16%	0%	101	17	69%		13%	257	54	1	481	41%	3%	275,884	DCH	Sept	1985
141	151	Agile Software	131	17%	11%	168	-16	-	-	-	416	186	0	733	39%	12%	178,308	AGIL	Apr	1995
142	144	Printronix	127	-2%	-3%	138	0	-85%	-46%	0%	97	42	13	-	- 00/	-	270.004	PTNX	Mar	1974
143	167	Blue Coat Systems	125	41% 20%	6% 16%	103 134	13	240%		11%	294 338	71 59	0	336 488	0% 24%	-9%	372,024 243,648	8CSI STEL	Apr Mar	1996 1995
144	162	Stellent Datalink	119 117	26%	-2%	146	-3			170	42	13	0	150	2%	3% -9%	780,667	DTLK	Dec	1958
146	163	Packeteer	113	22%	25%	99	19	32%		17%	433	123	0	304	6%	12%	371,382	PKTR	Dec	1996
147	183	Globix	111	75%	2%	178	-30	-	_	-	119	11	92	330	38%	-14%	335,758	GEX	Sept	1989
148	161	Secure Computing	109	17%	20%	95	21	67%		20%	619	81	0	400	6%	0%	273,000	SCUR	Dec	1989
149	125	Sierra Wireless	107	-49%	16%	182	-37	-	_	-	282	89	2	264	-	9%	405,682	SWIR	Dec	1993
150	155	Actuate	106	2%	-4%	107	12	792%	-	11%	250	54	0	491	2%	-4%	216,701	ACTU	Dec	1993
151	156	NaviSite	106	4%	1%	161	-13	-	-	_	82	2	1	451	-19%	4%	235,920	NAVI	July	1996
152	132	Intervoice	103	23%	-16%	98	19	5%	-	19%	320	70	0	746	0%	-6%	137,936	INTV	Feb	1983
153	157	Netopia	100	-2%	7%	153	-8	-	-	-	109	23	0	297	14%	-3%	337,710	NTPA.08		1986
154		Network Engines	98	-23%	64%	167	-16				112	36	0	144	-18%	15%	683,333	NENG	Sept	1997
155	165	Entrust	98	8%	-5%	115	6	482%		7%	235	83	0	530	8%	-10%	185,094	ENTU	Dec	1996
156	166	SpectraLink	98	9%	13%	110	12	10%	14%	12%	533	86	19	462	29%	11%	211,688	SLNK	Dec	1990
157	180	Neoware Systems	98	41%	53%	106	8	48%	-	8%	246	34	0	140	23%	18%	698,571	NWRE	June	1992
158	170	NetScout Systems	95 92	15% -3%	-3% -7%	118 157	-10	124%	6%	5%	279 175	76 73	0	359 505	5% 19%	0%	263,788 181,980	NTCT PTEC	Mar Sept	1984 1979
159 160	159	Phoenix Technologies Exabyte	91	-11%	-13%	159	-12				7	0	9	162	-11%	-29%	561,111	EXBY.08		1985
161	173	Captaris	86	11%	-2%	148	-4				125	24	0	420	2%	-29% -5%	205,714	CAPA	Dec	1982
162	186	Sycamore Networks	84	45%	-31%	132	1			1%	1,370	924	0	276	-22%	-26%	305,797	SCMR	July	1998
163	175	Docucorp	82	7%	7%	128	2	-45%	-2%	3%	92	11	2	455	14%	3%	181,099	DOCC	July	1997
164		Aladdin Knowledge Systems	82	18%	15%	105	12	41%	-	15%	298	77	0	410	9%	4%	199,512	ALDN	Dec	1985
165	147	Network Equipment Technologies	80	-32%	-6%	172	-21	-	-	-	97	90	25	300	-15%	-12%	267,333	NWK	Mar	1983
166	164	EasyLink Services	79	-14%	-11%	141	-1	-	-	-	32	6	13	-	-	-	-	EASY	Dec	1994
167	160	Interland	78	-20%	6%	171	-19		-	_	86	24	2	489	-20%	-10%	158,691	INLD	Aug	1981
168	169	WatchCuard	75	-9%	4%	154	-8		-32%	-	177	75	0	338	11%	3%	222,485	WGRD	Dec	1996
169	177	Raindance	75	-1%	17%	124	4	-	-	5%	149	44	0	246		-	-	RNDC	Dec	1997
170	182	Opnet Technologies	72	14%	22%	136	1	-89%	-36%	1%	200	83	0	376	22%	14%	191,755	OPNT	Mar	1986
171	179	Critical Path	67	-6%	-10%	163	-14	-		-	10	19	19	331	-7%	-12%	202,417	CPTH.08		1997
172	188	Interactive Intelligence	63	14%	6%	130	2	102%	-	3%	146	15	0	370	9%	-1%	170,000	ININ	Dec	1994
173 174	197 187	Opsware Onyx Software	61 60	62% 5%	2% -11%	165 140	-15		-		791	102 22	0	330 236	55% -17%	-3%	185,152 255,932	OPSW ONXS	Jan Dec	1999 1994
175	101	Terabeam Terabeam	59	157%	136%	158	-1 -11	<u>-</u> -			83	14	3	290	136%	-15% 38%	203,103	TR8M	Dec	2003
176	118	Hypercom	58	-77%	-33%	181	-33			_	197	94	8	1,452	-2%	5%	39,876	HYC	Dec	1978
177	110	Embarcadero Technologies	58	2%	3%	122	4	115%	-	7%	177	60	0	288	2%	0%	200,000	EMBT	Dec	1993
178		Vasco Data Security	55	83%	20%	112	8	133%	-	14%	340	17	0	120	7%	9%	455,000	VDSI	Dec	1996
179	193	Keynote Systems	54	16%	4%	113	7	48%	-	13%	207	135	0	191	-24%	-7%	282,199	KEYN	Sept	1995
180	184	Vitria Technology	54	-13%	-21%	160	-12	-	-	-	99	62	0	315	11%	-22%	170,476	VITR	Dec	1994
181		Saba Software	52	39%	0%	145	-3	-	-	-	166	14	0	334	29%	-9%	156,587	SABA	May	1997
182	195	Tumbleweed	50	15%	15%	147	-4	-	-	-	139	27	0	320	19%	8%	156,250	TMWD	Dec	1993
183	191	Lantronix	50	4%	-2%	152	-7				141	7	0	144	-27%	-14%	346,528	LTRX	June	1989
184		Verilink	50	-7%	2%	164	-14	-		-	17	1	0	140	-22%	-9%		VRLK	June	1982
185	100	Pervasive Software	48	-8%	3%	126	4	-44%		7%	94	41	0	251	2%	12%	190,837	PVSW	June	1982
186 187	190 194	GoRemote Vodavi Technology	45 44	6% 0%	17% 6%	155 131	-8	-28%	- -	3%	72 27	17	0	238	16% -7%	12%	187,815 412,264	GRIC VTEK	Oct Dec	1994 1983
188	192	NetManage	43	-9%	-14%	119	5	236%	<u>-</u>	11%	56	22	1	205	-9%	-2% -19%	211,707	NETM	Dec	1990
189	102	Actividentity	42	9%	8%	184	-50	-	_	-	199	145	0	313	30%	-3%	134,505	ACTI	Sept	1985
190		FalconStor	41	43%	64%	129	2	-	-	6%	455	37	0	279	29%	25%	146,953	FALC	Dec	2000
191	200	VA Software	39	23%	-27%	114	7	-	-	18%	237	43	0	114	-10%	-21%	341,228	LNUX	July	1993
192		Avici	39	59%	-8%	176	-25	-	-	~	55	48	0	206	6%	-8%	188,835	AVCI	Dec	1996
193		SteelCloud	37	29%	5%	139	0	-	-	0%	25	7	0	89	-2%	0%	410,112	SCLD	0ct	1987
194		Segue Software	36	10%	-1%	127	3	21%	- `	8%	103	15	0	204	9%	-2%	178,431	SEGU	Dec	1988
195		AXS-One	33	-15%	-5%	156	-9	-	-	-	80	4	0	209	-16%	-5%	156,938	AX0	Dec	1978
196	198	Interphase	31	-12%	2%	144	-2	-	-	~	34	19	0	126	-21%	-4%	245,238	INPH	Dec	1974
197		NctWolves	25	-5%	106%	151	-6	-	-		10	2	0	86	26%	3%	293,023	WOLV	June	1970
198 199		Qualstar Datawatch	24 21	-16%	-17%	142	-1	C40/	-	- F0/	47	34	0	95	-9%	-3%	254,737	QBAK	June	1984
200		Smith Micro Software	21 20	6% 53%	4% 17%	133 120	5	64% 38%	-	5% 23%	22	р	0	127 100	92%	7%	166,929	DWCH	Sept	
		2 MONTHS FOR FISCAL YEARS NOT ENDING IN						0070		2070	240	21	0	100	9270	9%	203,000	SMSI	Dec	1983

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Avaya bets on Web services

*Allotting 90% of R&D spending to software, Avaya aims to deliver IP telephony features as Web services.

BY JOHN WEBSTER

Avaya

is in transition. Over the past year, company officials have been laying out a software-centric product strategy with the goal of moving beyond PBXs and into the realm of servicesoriented architectures and Web services.

Avaya's intent is to increase the strategic value of IP-based voice applications by letting independent software vendors (ISV) and enterprise users integrate communications software, provided as Web services, and business applications, says Karyn Mashima, the company's vice president of technology strategy. "We break down an IP communications platform into telephony, contact centers and collaboration applications, and ask which ones would be useful to developers [so they can] dynamically develop and customize applications and processes," she says. So committed is the company that it is pouring 80% to 90% of its R&D budget into software, she adds. (In fiscal 2005, Avaya spent \$393 million on R&D.)

Of course, the move toward software isn't exclusive to Avaya, says Nora Freedman, research analyst at IDC. Nor is success a given, even for a company that has handily transformed from a pure telecom vendor into a major IP telephony player, she adds.

Since its launch in 2000, Avaya has built itself into a formidable telephony supplier by providing hybrid PBXs to enterprises that weren't ready for a full migration from TDM to IP. That strategy has positioned Avaya as the third-largest PBX vendor worldwide, behind Cisco and Nortel, Dell'Oro reports. In fiscal '05, the company, No. 30 on the NW200, had \$5 billion in revenue. Software sales accounted for 33% of revenue, vs. 27% in 2002, Avaya says.

One concern Freedman has is how well Avaya can manage the software transition with its resellers, which the company says accounted for 51% of 2005 sales. "Are maintenance, licensing and upgrades going to change the channel? If the channel revolts, that will cause Avaya headaches and sabotage its installed base," she says.

Anatomy of intelligent communications

Avaya has dubbed its software strategy Intelligent Communications to describe a "distributed, ubiquitous, real-time communications platform" built on IP telephony infrastructure, Mashima says.

To help users build this infrastructure, Avaya will provide communications software components, such as click-to-call or conference, as Web services or composite services that combine several actions. An application developer at an enterprise moving toward Web services and an SOA for deploying communications applications then could use notify, respond and setup conference modules to establish teleconferencing, for example.

Avaya provides Web services interfaces with several product lines, including its Communications Manager call-processing software and Eclipse-based Dialog Designer development environment for voice self-service applications. And it plans to ratchet up the number of Web services modules over the next three to five years, Mashima says.

Also strategically important is support for Session Initiation Protocol (SIP). Not only will SIP provide interoperability between IP devices and servers, its ability to carry presence information, such as the availability and location of users, offers potential in customer self-service applications, Mashima says.

"Self-service calls are becoming more complex, and you can differentiate yourself from competitors by reaching out into the enterprise for expertise. As an agent, SIP helps me understand who is present and available, and it works equally well in cases where there is voice and data, natively. When I pass you on [to another agent], everything — voice, data, where you've gone on the Web, the entire context of your actions — is included," she says.



■ Karyn Mashima, vice president of technology strategy

Focusing on the intelligent network is a smart move, with SOA, Web services and SIP high on enterprise priority lists, says Elizabeth Herrell, a vice president with Forrester Research. "However, there are

Avaya and the NW200 REVENUE RANK: 30, at \$5 billion

PROFIT RANK: 19, at \$961 million

CASH AND SHORT-TERM INVESTMENTS: \$726 billion

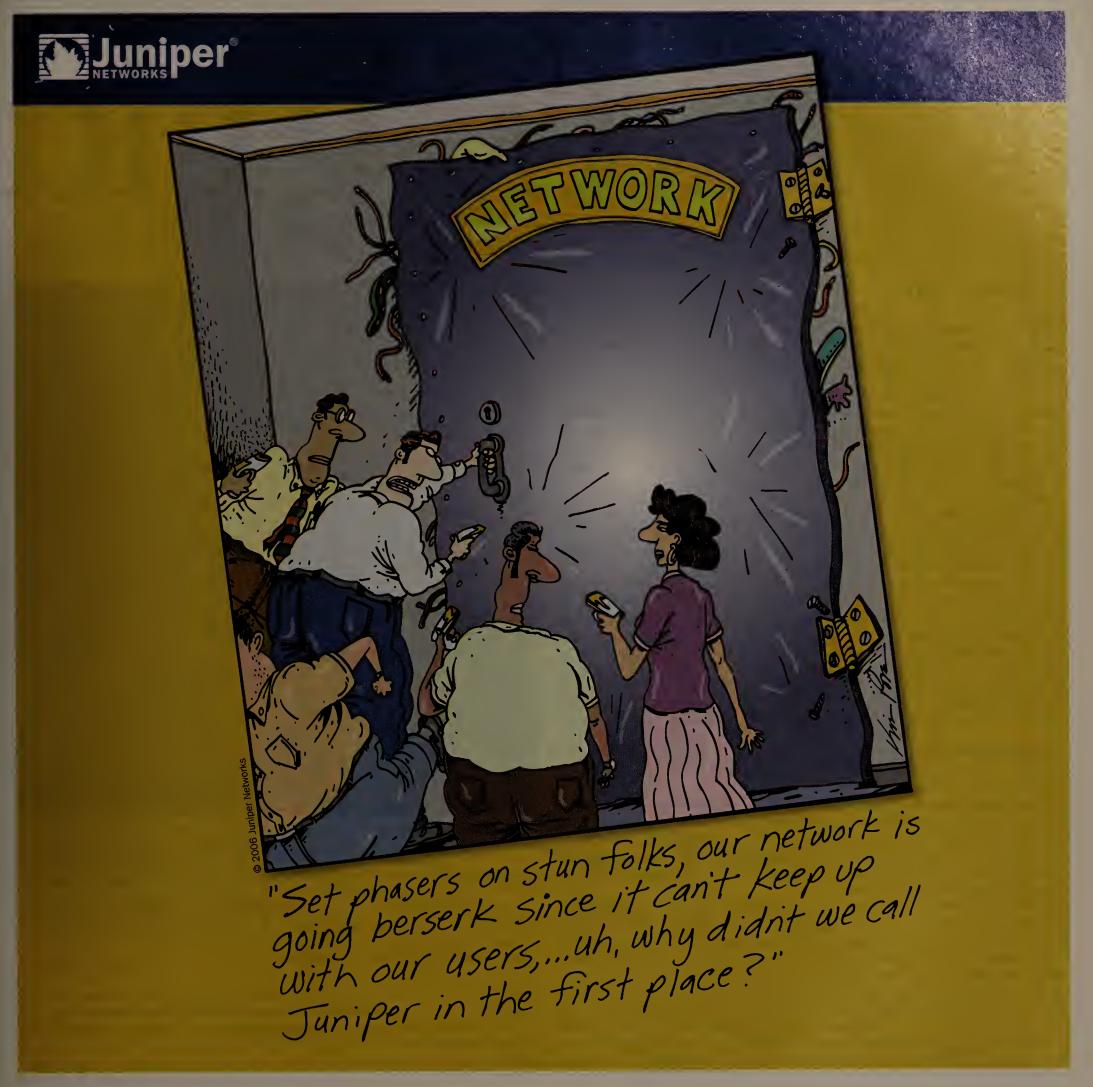
many vendors vying for leadership in this area, so Avaya needs to demonstrate its capabilities with major customer wins to be considered as a vendor of choice," she adds.

For Grant Thornton, a \$565 million accounting firm in Chicago, Avaya provides a solid foundation for expanding IP telephony use, says David Johnson, director of infrastructure technology. "Avaya gives us depth and breadth of technology that allows us to explore not only more effective means of communication but also to move forward in convergence It's a nice road map," he adds.

John Columbro, manager of network support and telecommunications at Medical Mutual of Ohio, a health insurance company in Cleveland, also points to Avaya's software strengths. "Our call centers use software agents to route call information to the best person. Phone conversations can be passed from agent to agent, traversing across levels of experience. Agents don't have to ask for a caller's name or ID number again and again," he says.

Avaya has been consistently on-message with its vision of a software-centric future for IP telephony. Whether its reputation as a market leader translates to continued growth through sales of communications software will depend on its ability to build on its installed base of legacy and IP PBX and contact center users, Herrell says. As IT departments embrace Web services and SOA, Avaya hopes to be the telecom vendor of choice.

Webster is a freelance writer in Providence, R.I. He can be reached at john.s.webster@verizon.net.



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in NetApps: 10 for 21 long for

+ NetApp wants to parla its strong NAS base into a leadership position in storage grids.

BY MICHELE HOPE

a world that has seen the cost of disk drives drop to nearly that of tape, selling storage solutions at a 60% gross margin is almost impossible. Yet that's precisely what Network Appliance has been able to accomplish — while maintaining its startling 30% annual growth rate.

NetApp CEO Dan Warmenhoven readily admits the company, which made its name in the early '90s for its network-attached storage (NAS) systems, isn't for storage managers who just want the lowest cost per gigabyte. "If you're looking for cheap storage, you're talking to the wrong guy," he says. "We get asked all the time, 'How do you expect to sell disk drives at 60% gross margin?' The answer is, 'It's not about the disk. It's not about the storage. It's about the data-management services."

Analysts and customers have given NetApp kudos for the innovative design of its operating system, Data OnTap. Peter Cole, an independent investment analyst, credits the price and performance benefits of this system — and a savvy board and management team — as key to NetApp's success at sustaining its high growth rate and reaching \$1.6 billion in revenue in its 2005 fiscal year, which ended in April 2005.

Simon Robinson, sector head for storage at The 451 Group, agrees. "NetApp's core strength is in Data OnTap and the fact it has a unified architecture that allows access to shared file storage. It's very easy to install and very easy to use. But the company also built a rich set of additional applications around that for file management and for snapshots," he says, noting NetApp's pioneering role in the adoption of disk-based snapshot technology.

Rock-solid and workhorse are two terms that Jeff Cobb uses to characterize the NetApp FAS840 system. "It's probably the most reliable piece of hardware we have, as well as absolutely the easiest thing to configure," says Cobb, a network manager with the University of California, Berkeley's extraterrestrial-seeking SETI@home project.

Moving beyond NAS

NetApp will push the bounds of Data OnTap as the company strives to break out of the original NAS niche that made it famous.

Already making headway into enterprise data centers, a single NetApp system now supports data reads and writes for high-end applications that prefer block-based, storage-area network (SAN) protocols such as Fibre Channel and iSCSI, or direct-attached SCSI formats — in addition to Network File System and Common Internet File System Windows and Unix protocols. The company's ability to make its portfolio SAN-capable has long-term competitive significance, analysts say.

Also important is NetApps' integration of Spinnaker Networks' Distributed File System technology, acquired two years ago, into its core operating system. That version, called Data OnTap GX, is expected to let the system to scale exponentially into even petabyte range.

More importantly, NetApp is positioning Data OnTap GX, as of press time in beta testing, as the cornerstone of its grid computing strategic vision.

If NetApp delivers on storage grid it might leap ahead of competitors, says Tony Asaro, a senior analyst with Enterprise Strategy Group. "There are seven vendors that do over \$1 billion in storage systems revenue. Those are Dell, EMC, [Hitachi Data Systems], HP, IBM, NetApp and Sun," he says. "If NetApp is going to become No. 1, it needs to reinvent what it has today and offer something with magnitude value over its current solutions.... Realizing the [storage grid] vision could get it there. The advancements it has made over the last couple of years — including virtualization, thin provisioning, writeable snapshots, and iSCSI and Fibre Channel — support this goal."

In response to industry detractors who complain about NetApp's delay in integrating Spinnaker technology, Warmenhoven says the process was much harder than anticipated. But he's quick to put it into perspective. "This is as significant a step in terms of the capabilities of the system as Microsoft went through when it went from the basic Windows to [Windows] NTThink about the scope and scale of one of those styles of transitions. It's pretty enormous. The says.

The end of April and the anticipated release of OnTap GX should mark the close of a piv-



■ Dan Warmenhoven, CEO

otal fiscal year for NetApp, one that has seen the company increase its workforce by one-third, and acquire technologies from Alacritus (virtual tape library functionality) and Decru (data storage encrypNetApp and the NW200 REVENUE RANK: 49, at \$1.8 billion PROFIT RANK: 37, at \$254 million CASH AND SHORT-TERM INVESTMENTS: \$1.1 billion

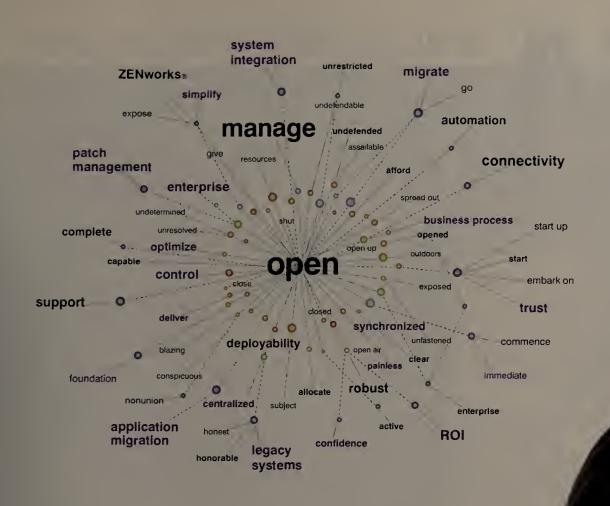
tion). In February, the company broadened its data protection portfolio with integrated product lines based on these acquisitions.

NetApp has broken new ground with OEM deals, such as with data search start-up Kazeon Systems, and continues to make headway following the deal it signed last April letting IBM distribute re-labeled NetApp products. Although no significant sales percentages have materialized from the IBM deal, most analysts say they expect NetApp to benefit from IBM's more pronounced global reach, as well as its presence in enterprise data centers.

What's not known is whether NetApp will meet Warmenhoven's vision to be "the innovator and the pioneer" in addressing customers' latest business problems. The same is true regarding Warmenhoven's belief that NetApp will some day eclipse its biggest competitor. (This goal, he admits, may not be realized during his time as CEO.)

Users such as Dan Werthimer, director of SETI@home, appear less concerned with such industry aspirations. In his case, he's sure of one thing when it comes to NetApp: "When E.T. calls, NetApp is going to be there."

Hope is a freelance writer who covers IT issues surrounding enterprise storage, networking and security. She can be reached at mhope@thestoragewriter.com.



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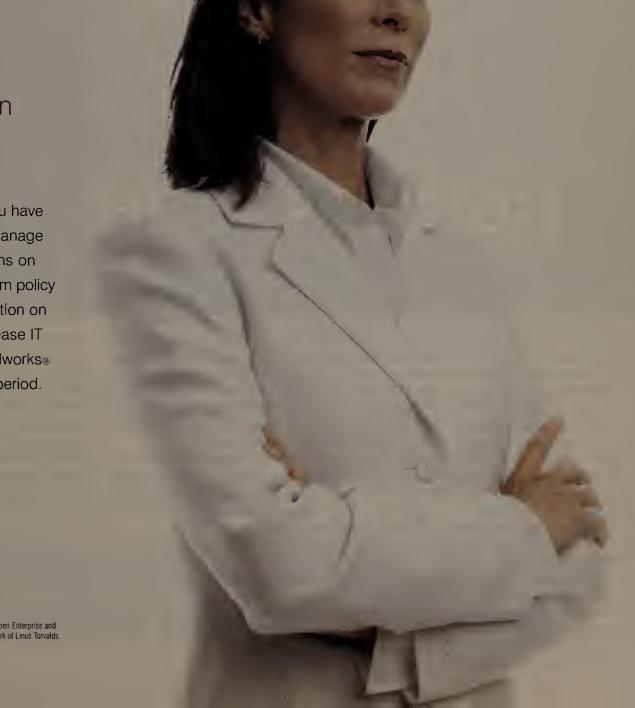
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+Well entrenched in the enterprise market, RSA pushes authentication deep into applications and devices. Sthe tolken ante

BY TAM HARBERT

the rise in identity theft and online security breaches, RSA Security seems poised to take off. But how far it goes depends on how well the company is able to expand its authentication technology to new markets and devices.

With its SecurID tokens, "RSA is the undisputed market leader in two-factor authentication for the enterprise," says Ranjini Chandirakanthan, an analyst at ThinkEquity Partners. According to IDC, RSA held 73% of the worldwide market for traditional authentication tokens in 2004. Its closest competitor, Vasco Data Security International, had less than 10%.

RSA, which had \$310 million in revenue in fiscal year 2005, has been successful in the enterprise market because it has such a robust back-end server that manages the authentication process, Chandirakanthan says. But with the market becoming somewhat saturated, it must look elsewhere if it wants to achieve high growth, she adds.

The company sees plenty of opportunity to leverage its technology in other areas. For example, more U.S. commercial institutions are becoming aware of the need to protect consumers against identity theft. That means RSA has an opportunity to help enterprises extend SecurlD to their customers. The Federal Financial Institutions Examination Council, made up of five U.S. financial services regulators, issued guidance in October 2005 that encourages all financial institutions to implement strong authentication in their Internet-banking applications. "It doesn't mandate a technology, but it makes it clear that this is a best practice that needs to be adopted, so it has created a flurry of activity and a great opportunity for us," says Art Coviello, RSA's CEO.

Extended security

Since last summer, RSA has made several moves to extend its technology; all are designed to make passwords more effective and to help enterprises create security infrastructures around them, Coviello says. For one, it enhanced its single sign-on software, Sign-On Manager. In addition, RSA will offer multiple authentication technologies that work with passwords. Some of the technologies come from the company's \$145 million acquisition of Cyota in December 2005, which brought RSA a way to offer corporations riskbased, layered authentication for their online consumers. Depending on the level of risk, cost and convenience required by a given application, a company can choose from a variety of authentication techniques, an offering Coviello calls adaptive security. "It's all about balancing three things: risk, convenience and cost," he says, adding that RSA hopes to make security "as inexpensive and as convenient as possible while minimizing risk."

Hudson Advisors, which manages commercial mortgages and real estate assets, adopted Sign-On Manager and SecurID last fall, says Mark Lynd, global technology officer and vice president of technology at the Dallas-based company."We're managing people's mortgage information — security is 60% of our worldwide IT budget," he says.

The technologies not only increased security but also brought tremendous productivity benefits, because employees no longer have to sign on to each of their accounts, Lynd says. A nice side benefit, he adds, is that Sign-On Manager lets employees gain access to personal online accounts from their work PCs. That helps reduce the chances that an employee will fall for a phishing e-mail and click on a rogue link, he says.

Beyond tokens

RSA also is extending its technology to other devices and platforms. Its technology today is deployed predominantly on tokens. The company needs to be neutral in terms of the way it delivers its technology, because the value is in RSA's back-end management tools, says Jon Oltsik, senior analyst of information security with the Enterprise Strategy Group. "It is really selling an authentication solution. Others just sell tokens," he says.



Art Coviello, CEO

Go online for more

business insights from

RSA CEO Art Coviello.

RSA announced in February that a number of companies, including M-Systems, Microsoft, Motorola, Research In Motion and SanDisk, have agreed to include its SecurlD technology in their products.

RSA and the NW200 REVENUE RANK: 105, at \$310 million PROFIT RANK: 83, at \$42 million CASH AND SHORT-TERM INVESTMENTS: \$188 million

"How would you like a SecureID token on your BlackBerry, or your cell phone, or in a memory stick — something that you're always carrying?"Coviello asks. The goal is to "create tokens out of things you carry around every single day," he says, noting that more

RSA also is developing a managed authentication service that would let consumers use the same token to log in to multiple online institutions such as brokerages and

> An authentication service would go a long way toward helping enterprises extend authentication to their customers, says Lynd, whose company is considering extending access to its investors and partners. "As Web applications become richer, it's going to be more and more important to verify and authenticate someone's identity."

> Harbert is a freelance writer in Rockville, Md. She can be reached at tharbert@comcast.net.



NetApp vs. The opposition

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+With cool technologies and growing business opportunities, these start-ups may one day be eligible for the NW200.

Start-tos to world staff to wall staff

STARTUPS

- BlueNote Networks
- Centeris
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- Copan Systems
- Elemental Security
- Mu Security
- NeoPath Networks
- Reva Systems
- Silver Peak Systems
- Tello

+BlueNote Networks

Tewksbury, Mass.; www.bluenotenetworks.com

What does the company offer? SessionSuite, an open IP telephony platform that runs on Red Hat Linux servers in a distributed model; call control and processing, messaging, applications, and gateway functions run as XML-based Web services applications and are decentralized across the network for flexibility and redundancy. The software also can integrate with legacy voice equipment via XML.

Why is it worth watching? Not only does BlueNote run SessionSuite on standard hardware and open source software, it also takes a service-oriented architecture (SOA) approach to enterprise IP telephony. SessionSuite runs an entire business VoIP network or integrates with legacy gear, the vendor says. This SOA approach, which turns VoIP into a network service or application, places the company ahead of traditional telephony vendors and even IP PBX

companies. BlueNote's strategy runs opposite to established vendors' business models of selling IP telephony-specific hardware, which uses proprietary transport and signaling protocols, or tying users to legacy TDM switching gear with IP-hybrid upgrades and extensions.

— Phil Hochmuth

FOUNDED: January 2005

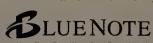
FUNDING: \$23.4 million

CEO: Tom Burkardt

CUSTOMER: Fidelity Investments

THE NAME: Blue note is a common term in jazz, of which Burkardt and Brian Silver, CTO, are aficionados.

GO ONLINE FOR MORE DETAILS: www.nwdocfinder.com/3123



+Centeris Bellevue, Wash.; www.centeris.com

What does the company offer? Centeris Likewise, a server management software product that enables systems administrators to manage Linux machines as they would Windows servers. Centeris also sponsors the Likewise Open Agent, an open source software application that enables Linux server administration from the Microsoft Management Console.

Why is it worth watching? Centeris couples a much-needed technology with open source. While Windows operating systems continue to dominate the market, Linux is gaining ground. Systems administrators will want to minimize the effort needed to manage multiple machines across their heterogeneous environments. Likewise couples integration tools with management features so administrators experienced in Windows can easily manage Linux machines with the same tools.

Likewise 1.0 has several components. A systems administrator installs Likewise Console on Windows machines and remotely installs Likewise Agent on Linux servers. The administrator then can use Likewise Console to configure Linux server roles and join them to Microsoft's Active Directory. Then the administrator can manage and monitor Linux servers through Likewise Console and Microsoft Management Console.

Currently the software works in a one-to-one manner, meaning one license of Likewise can manage one Linux box. The company plans to evolve the software to support a one-to-many architecture, in which multiple Linux machines could be supported through Likewise, but has not specified a target delivery date.

— Denise Dubie

FOUNDED: September 2004

FUNDING. \$16.5 million

CEO: Barry Crist

CUSTOMER: Eastern Financial Florida Credit Union

THE NAME: Represents how the company wants its software to be perceived, which is as the tool sitting in the center of the Windows and Linux systems manage-

GO ONLINE FOR MORE DETAILS: www.nwdocfinder.com/3124



+ConSentry Networks Milpitas, Calif.; www.consentry.com

What does the company offer? Network access control, via its Secure LAN Controller appliance for enforcing network access policies and shutting down connections that appear to be the work of malware. It also allows for real-time monitoring of what each user is doing on the network.

Why is it worth watching? While network access control is getting higher on security wish lists, enterprises are looking for ways to implement the technology without disrupting their networks and committing to major investments. ConSentry's gear is an add-on to existing networks that requires no upgrades and immediately supports network access control. The platform has custom processors that limit to negligible levels the delay caused by the screening it performs.

— Tim Greene

FOUNDED: August 2003

FUNDING: \$31 million • CEO: Tom Barsi

CUSTOMERS: BT Radianz, Continental Airlines and Las Vegas Review-Journal

THE NAME: By blending the first syllables of the words "control" and "sentry," the founders hoped to reflect the real-time control and inspection of network traffic.

GO ONLINE FOR MORE DETAILS: www.nwdocfinder.com/3125



+Copan Systems
Longmont, Colo.; www.copansys.com

What does the company offer? The Revolution 220T, 220TX and 220A virtual tape library and archiving appliances, which use a technology called Massive Array of Idle Disks (MAID). With MAID, disk drives can be powered up individually or in groups, as needed. Because the disks remain powered off until an application requests the data, the power-on duty cycle for each disk is reduced, thereby increasing the service life of the drives.

Why is it worth watching? Copan is marketing a unique technology and making a good value proposition of it. Because disks are spun only when data is needed, the cost of disks and the amount of power consumed by the Revolution array is close to that of tape. The company has gained use by a number of high-profile customers and gathered a good amount of venture capital to fund its operations. It has a few competitors, among them FleTek, which archives fixed content data, and Asaca and Exavio, both of which focus on digital prepress, broadcast and postproduction markets.

— Deni Connor

FOUNDED: March 2002

FUNDING: \$56.5 million • CEO: Mark Ward

CUSTOMERS: Baptist Memorial Healthcare, Chicago Mercantile Exchange, University of Texas Medical Branch

THE NAME: Derived from Copan, the largest known Mayan-era archeological site in Honduras. At Copan, archeologists found a large quantity of undamaged artifacts, which yielded massive amounts of information about this ancient civilization. Copan Systems' intent is to provide an array that lets users archive and retain information undamaged for long periods of time.

GO ONLINE FOR MORE DETAILS: www.nwdocfinder.com/3126





What does the company offer? Elemental Security Platform (ESP), a policy-based application aimed at integrating traditionally discrete areas such as network access control, configuration management and compliance management.

Why is it worth watching? Elemental Security is on a course to unify compliance requirements and system security. Its ESP combines traditional security features with policy-based computing — which is associated more often with user activity than with monitoring gear. With ESP companies can use a single application to define policies, monitor hardware and users for noncompliance with those policies, and take action against unsecured devices.

Driving the platform is Fuel, a scripting language for policy writing developed by the creator of the Python language, Guido van Rossum. Fuel lets users outline security policies using familiar terms that match those used in corporate policy documents. For example, a user could express a policy such as "Only users in the finance department can connect to SAP ERP servers," and ESP translates that simple phase to something understood by corresponding directory systems, applications and hardware.

ESP relies on agents to monitor devices on a network, and a dashboard keeps tabs on compliance with active secu-

Elemental's biggest challenge is the size of its competition, which includes network and security vendors such as Cisco and Symantec, as well as management players such as CA and IBM, which are working to provide similar capabilities in integrated product suites. So far, so good. Since releasing its first product in April 2005, Elemental Security has increased its customer base to more than 30 companies and signed 10 channel partners. The company expects to generate \$6 million in sales this year.

– Ann Bednarz

FOUNDED: December 2002

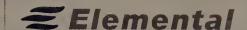
FUNDING: \$21 million

CEO: Peter Watkins

CUSTOMERS: Aegon Insurance, Catholic Health Systems, John Wiley & Sons, Purdue University, Shutterfly

THE NAME: Describes the vendor's goal of providing a solid foundation and essential building blocks for enterprise security.

GO ONLINE FOR MORE DETAILS: www.nwdocfinder.com/3127



e Start-ups, page 82



RISK MANAGEMENT FIRM SOLVES DISASTER RECOVERY



When everything was factored in, we estimated that centralizing all application servers would save us close to \$360,000 per regional office.

Mitch Nabors, Quality Built

Quality Built was committed to centralizing voice and data applications and providing real-time data replication between locations. The builder risk management firm required assurance that their WAN was up to the challenge.

Quality Built is the largest builder risk management services firm in the United States, providing claim services to all types of construction environments – from single-family homes to luxury high-rise projects. The company has worked on more than 225,000 projects across the country, representing a total construction risk value of \$1.01 billion in 2005.

"In our business, terabytes of data are transferred each day to clients and partners, as well as between Quality Built facilities," said Mitch Nabors, Network Administrator at Quality Built. "This places an enormous burden on IT."

All Quality Built employees require fast and reliable access to core applications that enable the sharing of business information. This includes NAS file servers, Microsoft Exchange email, a corporate intranet, and several SQL databases. This information is protected using real-time replication to a disaster recovery location in Denver.

The Strategy

With a rapidly growing customer base, Quality Built assessed their rising IT costs and determined that the best way to improve information delivery and to guarantee proper data backup is to centralize all application servers within their main data center in San Diego.

"It was cost prohibitive to duplicate servers and storage in branch locations," said Nabors.

Server distribution would require additional hardware and software expenditures, and add server support costs. In addition, it would require Quality Built to upgrade existing operating systems, add clustering capabilities across their databases, build out new server room facilities, and implement a new Storage Area Network (SAN). Quality Built would also have to add senior IT personnel to support this initiative.

Added Nabors, "when everything was factored in, we estimated that centralizing all application servers would save us close to \$360,000 per regional office."

QUALITY BUILT'S CHALLENGES

Poor web, e-mail, and file

Stringent data replication

Noticeable issues with

needs between locations

VoIP quality across WAN

performance across WAN

CHALLENGE

The Challenges

Server centralization did not come without challenges in the Quality Built environment.

"In some instances, it would take over 30 minutes to transfer large files across the WAN," explained Nabors. "Similarly, it would take hours to backup all corporate data to Denver across dual bonded T1 links."

In addition, Quality Built invested in Voice over IP (VoIP) equipment to eliminate long distance charges between corporate locations. However, users complained that VoIP calls sounded "garbled" and "digitized" across the WAN.

"We save close to \$20,000 per year doing VolP," said Nabors. "But poor voice quality was preventing end users from appreciating the benefits of this technology."

Searching for a Solution

In April 2005, Quality Built determined that an acceleration solution was required to improve

application usability across their WAN. In addition, they required a solution that could ensure the real-time replication of large volumes of data without requiring significant investments in WAN bandwidth.

The company spent four months evaluating a wide range of acceleration products.

"We ruled out basic compression solutions because they did not provide enough bang for our buck," said Nabors.

The company also explored Wide Area File Services (WAFS), but it was concerned that caching technology might result in the delivery of inconsistent information across different Quality Built locations. Plus, WAFS only addressed a subset of Quality Built's total application acceleration needs.

"For us to invest in a new technology, it must improve the performance of all of our applications, including email, web, SQL database transactions and the transfer of backup files. We

RESULTS

- 20x reduction in web traffic
- 30x improvement in file transfer
- Toll grade voice quality across WAN
- Saved nearly \$360,000 per site in hardware, software, facility and support costs
- Save \$20,000 per year using VoIP

cannot cost-justify a separate solution for every application in our network," added Nabors.

Building a Solid Foundation

Ultimately, Quality Built selected Silver Peak's NX-3500 appliances.

Silver Peak appliances leverage data reduction to eliminate the transfer of duplicate information across the Quality Built Wide Area Network. The Silver Peak solution uses a technique called "Network Memory"™ to remember every byte of information that traverses the WAN between Quality Built offices. Network Memory recognizes duplicate patterns in real-time and sends references across the WAN that enable the information to be delivered locally by remote Silver Peak appliances. This reduces WAN traffic by over 99% and improves perceived application response time.

> "We saw a 20x reduction in web traffic," professed Nabors. "In addition, 30 minute file transfer times were reduced to less than 1 minute."

Silver Peak also provides Quality of Service (QoS) features that can be used to prioritize time-sensitive voice traffic. This helped Quality Built eliminate virtually all distortion on VoIP calls across their WAN.

Hardware-based encryption of local data stores enabled Quality Built to confidently replace servers with new acceleration appliances.

"The last thing we wanted to do was to improve application performance at the expense of data security," added Nabors.

Quality Built decided to deploy Silver Peak NX appliances in all locations. The security, compliance, cost and management savings that Quality Built achieved by centralizing file, email, VoIP, web, and SQL applications more than justified the expenditure in network acceleration appliances. In addition, Silver Peak enabled Quality Built to maximize the company's investment in strategic applications, such as VolP.

"Our WAN can now handle any application that we throw at it," said Nabors. "To a company that is in the business of managing risk, that type of assurance goes a long way."

FOR MORE DETAILS

For more information on Quality Built's case study, including a detailed threeyear cost savings analysis, visit: www.silver-peak.com/quality_built Call: 888-598-7325 (toll free)



or +1 650-331-3581 (international) Silver Peak

Mu Security

Sunnyvale, Calif.; www.musecurity.com

What does the company offer? The Mu-4000 appliance, which provides protocol-based security analysis for network equipment.

Why is it worth watching? The Mu-4000 appliance is intended to uncover unknown weaknesses in network devices (though not at the application layer) in a lab environment. As such, it can help vendors catch security flaws before their products ship and provide enterprise customers with a way to find glitches. The Mu-4000 also is capable of comparing products. Since it may uncover a wealth of unknown vulnerabilities, use of the appliance, generally available this month, could spur considerable dialogue on protocol-based security. A danger is that the Mu appliance might be used by attackers, giving them insight into new ways to subvert security.

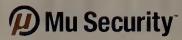
— Ellen Messmer

FOUNDED: March 2005 • FUNDING: \$4 million

CEO: Ajit Sancheti • CUSTOMERS: Undisclosed

THE NAME: "Mu" is said to stand for "mutate the protocols" because the security-analysis appliance bombards a target device with hundreds of thousands of attacks that simulate how hackers could manipulate routing, authentication, FTP, HTTP and other protocols to gain access to or bring down a network device.

GO ONLINE FOR MORE DETAILS: www.nwdocfinder.com/3128



NeoPath Networks Mountain View, Calif.; www.neopathnetworks.com

What does it offer? The NeoPath File Director an appliance that consolidates file systems residing on distributed file servers and network-attached storage devices into a virtual environment that can be managed from a single console.

Why is it worth watching? The ability to aggregate file storage for better utilization, provisioning or migration is in high demand. NeoPath is representative of a number of companies that aim to provide this functionality, including 1Vision, Acopia, Attune Systems, NuView (recently acquired by Brocade) and Rainfinity (acquired by EMC). Like others, NeoPath's appliance manages unstructured data, an area that the Enterprise Strategy Group says comprises more than half the data on networks.

— Deni Connor

FOUNDED: April 2002 **FUNDING: \$18 million**

CEO: Alan Baratz

CUSTOMERS: Ball Aerospace & Technologies, Ubicom

THE NAME: Selected because the product provides a new (neo) path to information.

GO ONLINE FOR MORE DETAILS: www.nwdocfinder.com/3129



HITS

HITS

+Reva Systems Chelmsford, Mass.; www.revasystems.com

What does it offer? The Reva Tag Acquisition Processor, a rack-mounted network appliance and Java software to manage large numbers of RFID readers, capture and process lots of data from RFID tags, and push this data into lineof-business applications.

Why is it worth watching? Reva's product gives a system-wide view of an entire RFID network, collecting not only tag data but also data about the behavior of the readers and the state of the radio waves. The software can adjust the radios, bring readers online or offline, assess data quality continuously, and pinpoint problems and their locations. A variety of APIs link Reva to back-end databases, messaging services and enterprise applications. Cisco validated Reva's approach last fall when it unveiled a Catalyst 6500 blade featuring an embedded version of RFID middleware from ConnecTerra (now BEA Systems). In this rival infrastructure, the blade filters raw RFID traffic at the network edge and passes it to the data center and on to applications.

— John Cox

FOUNDED: April 2004

FUNDING: \$14 million

CEO: Ashley Stephenson

CUSTOMERS: Accenture, HP

THE NAME: This Sanskrit word, which means "new beginning," met a co-founder's non-negotiable criteria: two syllables and an available Internet domain name.

GO ONLINE FOR MORE DETAILS: www.nwdocfinder.com/3130



+Silver Peak Systems

Mountain View, Calif.; www.silver-peak.com

What does it offer? The NX Series of network acceleration appliances.

Why is it worth watching? Silver Peak offers an alternative to traditional WAN optimization and application acceleration technologies while reducing the need for dedicated servers and storage at branch locations. The NX Series appliances install in the data center and all branch offices with no changes to clients, servers or applications. They communicate with each other over the IP layer.

Within each appliance, Network Memory technology inspects all inbound and outbound WAN traffic — be it from TCP or User Datagram Protocol, interactive or transactional, or real-time or streamed applications — and stores a local instance of the data in memory on each appliance. The appliances then compare real-time traffic streams with stored patterns. If a match exists, Network Memory sends a short reference pointer to the appropriate remote NX appliances and instructs those devices to deliver the traffic pattern from the local instance. The client application is irrelevant; employees at one branch office might download a CEO presentation off the corporate Web servers while employees at another location get the presentation via e-mail. The data will still come from the same local instance. If content is modified, the appliance detects the change at the byte level and updates the memory. Only the modifications get sent across the network; the local appliance combines the modifications with the original content. The appliances come in three versions. The largest provides 2TB of local storage and support for as much as 155Mbps WAN bandwidth, and the smallest provides 500GB of local storage and support for 10Mbps of WAN bandwidth. — Beth Schultz

FOUNDED: June 2004

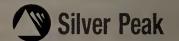
FUNDING: \$21.5 million

CEO: Rick Tinsley

CUSTOMER: Quality Built

THE NAME: Represents common values executives want associated with the company --- silver is a valued commodity, and is used to convey maturity; peak indicates the highest point.

GO ONLINE FOR MORE DETAILS: www.nwdocfinder.com/3131



* San Mateo, Calif.; www.tello.com

What does the company offer? Tello Basic and Tello Enterprise, for instant communications and collaboration between networks, applications and devices. The Basic service is for individual users, while the Enterprise version is for corporatewide deployment.

Why is it worth watching? Tello is upping the collaborative ante by offering users a tool that ties together disparate real-time communications applications. Whether it is using AOL's Instant Messenger or Sprints ReadyLink push-to-talk application, Tello customers will know which business partners are available and can communicate with them using the company's service.

— Denise Pappalardo

FOUNDED: Late 2004 • FUNDING: \$5 million

CEO: Doug Renert

+'05 start-ups revisited See how last year's picks have fared. Go to www.nwdocfinder.com/3137

CUSTOMERS: Undisclosed beta testers

THE NAME: Co-founder John Scully came up with the word "Tello" by joining the word "telecommunications" with the greeting "hello" creating a logical name for a real-time communications company, he believes.

GO ONLINE FOR MORE DETAILS: www.nwdocfinder.com/3132

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Sector +These three privately held vendors stand out in an industry dominated by public giants and venture-funded start-ups.

SY BETH SCHULTZ

Allied Telesyn may not have the instant name recognition of Cisco or Nortel, but the company's Ethernet network and access gear is all over the place. As James Mustarde, the company's vice president of marketing, asserts: "There probably isn't a Fortune 500 company that doesn't have an Allied Telesyn product somewhere."

Grandiose as that may sound, Mustarde's guess is probably true, says Shirley Hunt, a Frost & Sullivan analyst. "The Fortune 500 company may use high-end Cisco equipment in its headquarters office and still use Allied Telesyn equipment in its remote offices, since the Allied equipment is compatible with the Cisco equipment," she says.

Also true is that Allied Telesyn has been in the Ethernet switch business as long as or longer than most networking companies, Hunt points out. The company, a wholly owned U.S. operation of global technology conglomerate Allied Telesis Group, was formed in 1987.

But the company established itself in low-end, small implementations. Only within the last couple of years has it begun ratcheting up with advanced features such as high-speed connections to gigabit and 10-gigabit networks, Layer 3 switching and network management. The kicker is that Allied makes these features available at better prices than higherend vendors, Hunt says. (Allied's Layer 3 switches range in price from \$1,500 to \$11,500.) Plus, the Allied Telesyn devices are easy to configure and install, because the equipment itself handles most of the installation.

Allied Telesyn's ability to provide an end-to-end, integrated network, including network management and zero-touch configuration, was a big draw for the city of Loma Linda, Calif., and its unique community connectivity program, says James Hettrick, IS director. In 2003, Loma Linda became the first U.S. city to mandate fiber and structured wiring in any new residential or commercial construction.

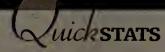
For the project, the city uses Allied Telesyn's iMAP Multiservice Access Platform, iMG intelligent Multiservice Gateways, Layer 3 switches and routers. "When we started this in 2003, we were amazed to find a vendor as far along as Allied Telesyn was with its products," says Hettrick, noting that he was particularly impressed with the vendor's Layer 3 and virtual LAN (VLAN) features.

The modularity of the vendor's products and the low base price also were impressive. "We're not getting stuck committing more than we want to in any fiscal year. It was so willing to make the pricing structure work, and it wasn't worried about selling us a high-dol-

Volable OUOTABLE

"Customers like the fact that [as a Tier 2 vendor] we have to try harder, and we'll pull out all the stops to make the customer fact like we make a difference to its business. feel like we make'a difference to its business.

JAMES MUSTARDE, VICE PRESIDENT OF MARKETING



'05 REVENUE: Not disclosed, though published reports peg revenue at \$39 million (A publicly traded company with revenue in that range would fall in the bottom 10 on the NW200.)

'05 REVENUE FOR PARENT COMPANY, ALLIED TELESIS GROUP: \$500 million

NUMBER OF R&D AND MANUFACTURING CENTERS: 13 worldwide

NUMBER OF COUNTRIES SERVED: 30, on five continents

SAMPLE CUSTOMERS: Case Western University, Department of Energy, Department of Homeland Security, McDonald's, Mercedes/Daimler/Chrysler

lar maintenance plan," Hettrick says. Though Hettrick didn't specify pricing, fiber-to-thehome customers can get passive optical networking or active setups in the sub-\$500 range, Allied says.

Despite such warm fuzzies, Allied Telesyn faces a challenge in growing its enterprise business, Mustarde says. Broadening its product lines to support VoIP and wireless broadband is one way the company expects to boost enterprise sales, he adds. Hunt agrees that those are logical extensions, and says security management would be another important area for Allied Telesyn to consider.

As a company that has made its name as the lower-cost provider, Hunt says, "Allied Telesyn can use the same value-add strategy for security that it uses for other high-end features."

Network General *Corporate rebirth

Under the leadership of CEO Bill Gibson, who took the helm in December 2005, Network General is vying to become a leading application and network performance management vendor.

Today's Network General came into being in July 2004, when private equity firms Silver Lake Partners and Texas Pacific Group acquired McAfee's Sniffer Technologies division for \$235 million.The original Network General, which developed and then launched the popular Sniffer network management tool, ceased to exist in October 1997 after being acquired by security software vendor McAfee Associates in a deal valued at \$1.3 billion. The merged entity became known as Network Associates. While technology development continued — for example, Sniffer Enterprise Management and Sniffer Mobile shipped in 2002 — Sniffer largely played second fiddle to the company's McAfee line.

On its technological strength, Sniffer maintained a loyal customer following even as Network Associates ultimately let product development languish. For a while, Network Associates did little more than provide help desk support, says Jeff Duke, senior network engineer with Indiana's Office of Technology, in Indianapolis. "But I never feared that the product would dissolve, as I knew it was good enough that somebody would want to buy it. It's the best of the best," he says.

MAXIMUM SYSTEM PERFORMA

Getting To The Bottom Of Common Reliability Problems

s an IT Professional, you know the importance of maintaining system performance and reliability. If the desktops or servers crash, slow down or freeze, who gets called? That's right...you or your IT staff. This "break-fix" cycle leaves you little time to be proactive. And yet, many of these issues stem from a single, hidden source.

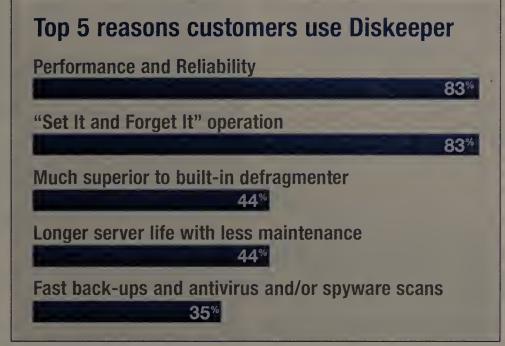
Reliability issues commonly traced to disk fragmentation.

The most common problems caused by file fragmentation

- Crashes and system hangs/freezes
- Slow boot times and boot failures
- Slow back up times and aborted backup
- File corruption and data loss
- Errors in programs
- RAM use and cache issues
- Hard drive failures

Having files stored contiguously on the hard drive is a key factor in keeping a system stable and performing at peak efficiency. The moment a file is broken into pieces and scattered across a drive, it opens the door to a host of reliability issues. Even a small amount of fragmentation in your most used files can lead to crashes, conflicts and errors.

(GET THE PROOF HERE: www.diskeeper.com/paper)



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The weak link in today's computers

The disk drive is by far the slowest of the three main components of your computer: CPU, memory and disk. The fastest CPU in the world won't improve your system's performance if the drive is fragmented, because data from the disk simply can't be accessed quick enough.

Is Daily Defragmentation Needed in today's environment?

More than ever! Large disks, multimedia files, applications, operating systems, system updates, virus signatures - all dramatically increase the rate of fragmentation. If fragmentation is not addressed daily, system performance will suffer. Fragmentation increases the

time to access files for all common system activities such as opening and closing Word documents, searching emails, opening web pages and performing virus scans. To keep performance at peak, defragmentation must be done daily.

Advanced, automated defragmentation

Manually defragmenting every system every day is simply not possible in even small networks let alone enterprise sites. IT Managers use Diskeeper's "Set It and Forget It" operation for automatic network-wide defragmenta-Customers agree Diskeeper maintains the performance and reliability of their desktops and servers, even reducing maintenance and increasing hardware life.

"We run [Diskeeper] on our client PC's as well as our servers...with Diskeeper running daily, we can keep file performance at peak efficiency."

Tom Hill, CDR Global, Inc.

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Private continued from page 84



Since Network General has been reborn, product improvements have come at a steady pace. In fiscal 2006, ended Jan. 31, the company spent \$30 million to research and develop new products, Gibson says. The work resulted in nine releases over the last 12 months. Those include InfiniStream 2.5, the "Sniffer on steroids" tool — as Gibson says — that provides insight into enterprise network performance over time, and

the re-architected Sniffer Enterprise Visualizer 4.0, a Web-based tool that provides the ability to benchmark, graph and chart performance issues across the network or applications.

In Indiana, Duke runs Visualizer to gather information from 30 or so Sniffers and generate reports on traffic and application flows across its 35,000-node network. "It's a great product for improving performance" that keeps getting better, he says. "I used Visualizer as a Network Associates product, but it was not as scalable as it is now. Network General has done a good job of changing the way it works and helping to improve performance."

Users should expect the same sort of improvements from Network General this year, Gibson says. The company has committed \$30 million to the fiscal '07 R&D line, and engineers are on track to deliver nine releases this year, he adds.

The goal, he says, is to reshape Network General from a tool vendor into a provider of an enterprise management architecture for ensuring business services delivery."We want to go beyond the basic [service-level agreement]," says Gibson, who oversaw a similar transformation as COO of Crystal Decisions, a business intelligence software vendor.

Pouring big bucks into R&D is one way to make that happen. Acquisition is another. In February, Network General bought privately held Fidelia Technology for its business service monitoring application called NetVigil. Once Network General fully integrates the two this fall, users will get end-to-end management capability as well as the ability to individualize views of the infrastructure by business unit, Gibson says.

Indiana's Duke is evaluating NetVigil and is excited about its potential as a management framework."This will give us a complete solution that will manage everything and allow us to report and build business containers for each agency. I'll then be able to show my CIO the percentage of network availability, application response times, uptimes, downtimes, etc.," on an agency-by-agency basis, he says.

As Gibson plots Network General's progress from tools to platform vendor, he gets fairly bullish with growth goals. He expects the company to increase revenue by 18 to 19% for fiscal '07, or three to four times as fast as industry analysts predict for the market.

Gibson rationalizes his goal on "IT's overwhelming reaction" to what the company has done so far, he says. Sales are up three times in the second half of fiscal 2006 over the first

half of the year. "Take that mythical S curve. We're in the area where it gets steep, and we think there's still a couple of years of people moving to these new products," he says. Duke thinks Network General is strong enough to take on Cisco and the other giants moving into the application performance race. "Network General," he says, "is ahead of the game and paying attention."



NUMBER OF EMPLOYEES: 650 globally, with about 255 in engineering

NUMBER OF CUSTOMERS: 13,000

MARKET SHARE: Holds 33.5%, or the dominant stake, of the LAN/WAN installation, maintenance and monitoring market (Frost & Sullivan)

R&D SPENDING: \$60 million over fiscal '06 and '07, ending Jan. 31, 2007

'05 REVENUE: Undisclosed

REVENUE GROWTH: Projected at 18%-19%, or three to four times estimated market rate

MAJOR MOVE: February acquisition of Fidelia Technology, to accelerate rebirth as enterprise management framework provider

Stratus Technologies +Back to the future

Fault tolerance and continuous availability are virtually synonymous with the name Stratus Technologies. That statement is as true today as it was in 1980, when the company, then known as Stratus Computer, launched with a focus on faulttolerant computing for enterprises.

But the company has undergone significant change over the years. In a corporate nutshell, Stratus went public, got acquired and then privatized in a leveraged buyout. Today, it remains a privately held, partially employee-owned company. Stakeholders are Intel Capital, Investcorp, MidOcean Partners and NEC, which also inked a 10year joint development agreement with Stratus last November.

There is a twist, though. Stratus has had debt in the public bond market, and has been legally obligated to release financials. Although its fiscal '06 data is not yet available, annual revenue growth has been creeping up year after year, reaching \$272 million in fiscal '05, for the year ended Feb. 27, 2005. NW200 companies with similar revenue ranked at about the midway point.

Key to Stratus' revenue picture are sales of the company's ftServer servers. The ftServer line resulted from Stratus' five-year transition from a vendor with proprietary hardware and software to one with open, Intel Xeon-based servers. For example, Xeonbased ftServer W Series servers operate with Windows, and the T Series servers support Red Hat Enterprise Linux. Stratus still offers its proprietary operating system in its

Series servers provide the fault tolerance and continuous availability required for the mission-critical options business, says Bill Morgan, ClO. "Stratus is the only vendor that offers a true fault-tolerant platform. Its implementation of fault tolerance is well

ftServer V Series and Continuum systems. At the Philadelphia Stock Exchange, V



done, efficient and, most importantly, stable," he adds.

In a November 2005 technology report, Butler Group analyst John Holden gave the Stratus servers a thumbs-up, saying the ftServers offer a good and relatively affordable option for enterprises needing to provide bulletproof service levels.

Since moving to an Intel-based architecture, Stratus has doubled its user base to 5,000 customers, says CEO Dave Laurello, and it has penetration into new verticals such as healthcare and pharmaceuticals. He considers Stratus' transition complete, with the December 2005 Linux rollout, and says he is driving the company to be more of a solutions provider. Disaster recovery and application availability are new focus areas, he adds.

For the Philadelphia exchange, which has been working with Stratus for 17 years, the company has risen to any challenge, Morgan says. "The engineers know us well, and we know them. Stratus has always been a vendor that understands its niche."

nww.com

■ More private parties

For a sampling of more privately held network vendors, go to nww.com. docfinder 3134

NUMBER OF EMPLOYEES: Approximately 900

NUMBER OF CUSTOMERS: 5,000

'05 REVENUE: \$272 million, comparable to the No. 112 rank on the NW200 list

Stratus' corporate identity over the years

1980: Stratus Computer founded

1982: Initial public offering

1980s-1990s: Established stronghold among financial companies and expanded into telecom sector with fault-tolerant switches and other high-end technologies

1998: Acquired by Ascend Communications for telecom business in a \$822 million deal

1999: Stratus Technologies is launched in a leveraged management buyout of Ascend's enterprise server business unit

2003: Company comes full circle, buying Cemprus, the former telecom business acquired by Ascend

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+Six NW200 CEOs tell us what makes them tick.

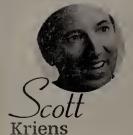
GEO secrets



Go online for input from other NW200 CEOs. DOCFINDER: 3121



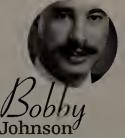
Peterson AVAVA (NW200 No. 30)



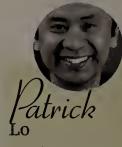
JUNIPER NETWORKS (NW200 No. 40)



NOVELL (NW200 No. 61)



FOUNDRY NETWORKS (NW200 No. 95)



NETGEAR (NW200 No. 86)



(NW200 No. 105)

Favorite business book



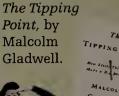
Don't really read them. History books have much more to offer. WWII and [Winston] Churchill have as much to teach about business as today's business books.



The Innovator's

No-Nonsense

Management: A General Manager's Primer, by Richard Sloma. (I first read this in the early 1980s, and it is still all true today.)



The Slow Pace of Fast Change, by Bhaskar Chakravorti.

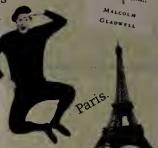
Favorite meeting place other than the office

A restaurant.

By the ocean. Helps keep everything in perspective.



A hotel in Carmel, Calif.



The Library Room at Stonehedge Inn in Tyngsboro, Mass.

First thing done after arriving at work



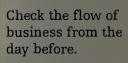
and check e-mail.



Put previous night's work into the out-box; scan the front page of The Wall Street Journal; scan e-mail.



Check e-mail.



Telephone or e-mail:



Telephone for people I want or need to talk to. E-mail is less immediate and less personal.



E-mail for regular information and casual status; phone for panic attacks.



Whatever fits on my

Treo 650 screen.

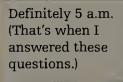
the morning;



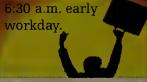
Early riser or late-night worker?



Charts and graphs.



Pictures and numbers. (Spare me the words.)

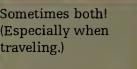


Text and written explanations.

Exercise (running).



Yes (both)!



Numbers and written

5 a.m. early

workda

analysis.

Charts & graphs or text & written explanations:

Favorite way to

beat stress

Talk.



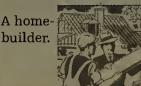
A gym workout normal- Tai-chi in ly, but when traveling on business, a museum karaoke in visit or when in Japan, the evening. a weekend at a hotspring inn.



If not networking, would be or try:

A woodworker.

Golf or car racing or wine making.



Many, but if I have to pick one, a professional baseball player.

A tenured professor. school teacher, or a baseball or softball coach.

Replacing Windows apps with open source

BY DAVE KEARNS

We have began to explore the issues involved in moving from a Windows-based desktop with Microsoft proprietary applications to a Linux desktop with open source apps. Novell had announced a project to do that internally in March 2004, and has now moved all of its employees to a Linux desktop — albeit for the majority of them one that can dual boot to Windows.

One reason could be the unavailability of open source applications that include all of the functionality of the Microsoft applications they would replace.

A second problem is backwards compatibility. You've got thousands, maybe millions, of documents created with various versions of Microsoft applications over the years. You still need to be able to open those documents and read them. Perhaps they also need to be maintained so that people can write to them.

Then there's the issue of training. The standard thinking is that you need open source applications that have the same "look and feel" as the Microsoft applications they're replacing. But logic tells you (as does trademark, copyright and patent law!) that the new application won't be 100% equivalent.

It's been my experience that 95% equivalent is a lot more irritating than 25%. Here's my reasoning: With a new look and feel, you spend longer learning the new application thereby learning about all of its functionality. With an "almost equivalent" application, you don't bother training yourself and continuously bump up against those functions that are different.

Better, to my thinking, to acquire those applications with the 20% equivalent functionality that 80% of your users employ and train them to use it effectively—something they aren't doing with the Microsoft applications.

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So there are three reasons why you shouldn't wait for the "perfect" open source applications to replace your Windows productivity tools.

But also learn from Novell's

experience that dual-boot systems can go a long way towards easing the transition.

Still, don't fall into the trap of using dual boot as a crutch because it will multiply the

problems your IT and help desk personnel will have to solve every day.

Kearns is a writer and consultant in Silicon Valley. His most

recent book is Peter Norton's Complete Guide to Networks. His company, Virtual Quill, provides content services to network vendors. He can be reached at info@vauill.com.



The original Wi-Jack™ set the standard as the stylish, high-performance wireless access point that blends smoothly into any office décor. The new Wi-Jack raises the bar by disappearing into the décor. While it's hard to find, it easily integrates into the structured cabling system. The new Wi-Jack will be unveiled at Interop Las Vegas. In the meantime, visit www.ortronics.com/newwi-jack for more information.

The search ends at INTEROP Las Vegas May 2-4 Booth 141



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E-MAIL NEWSLETTER SHOWGASE: IT careers and training

Group works to define the role of IT architects

BY LINDA LEUNG

The Open Group next week will launch the Association for Open Group Enterprise Architects with an aim to define the role of IT ar-

chitects and to establish a code of ethics for the profession.

The association will be launched at The Open Group's Architecting to the Edge Conference

in Washington D.C., aimed at IT professionals charged with building IT environments that are highly distributed and interact with a large number of services, accord-

ing to the IT industry consortium.

The Open Group expects the association to attract membership from IT professionals who hold the consortium's IT Architect Cer-

tification (ITAC) and/or The Open Group Architecture Framework certification, and pros working towards those designations.

The industry consortium launched its ITAC program last July with a certification that is now named Master Certified IT Architect. In February, the group introduced a lower-level certification called Certified IT Architect, and there are plans to launch a high-level Distinguished Certified IT Architect designation, plus a definition of disciplines.

ITAC is aimed at practicing IT architects, including network architects, who are responsible for understanding business goals and developing an IT infrastructure.

Program details can be found at The Open Group Web site, including why The Open Group thinks the certification is worth having as a validation mechanism.

IT vendors can also get their IT architect certification programs accredited by The Open Group, which is what IBM has done. The accreditation authorizes IBM to recommend employees who meet the criteria for certification under ITAC. Electronic Data Systems (EDS) is also putting some of its IT architects through the certification and last month announced that four individuals had achieved the Master Certified IT Architect status. Including the EDS employees, The Open Group's Graham Bird, vice president of marketing, said 20 individuals have gone through the program.

We've discussed before the growing demand for executives who can speak in business languages and translate what corporate wants in an enterprise project. But there is no standard definition for IT architect. If The Open Group gets industrywide support for the ITAC program and the enterprise architect association, and both are recognized as gold seals for IT architects, it could be worth pursuing the accreditation.



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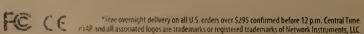
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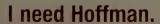
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Observer delivers WLAN mgmt. for Select Comfort

The Select Comfort® Corporation (NASDAQ: SCSS), creator of the revolutionary Sleep Number® bed, has over 2,500 employees, 375 retail outlets, and delivers net sales of \$558 million annually. For years, network administrator Christian Wilson used Observer® Suite by Network Instruments to monitor, manage, and troubleshoot the company's network.

When Select Comfort implemented an 802.11 wireless LAN, Wilson used Observer to deploy access points, load balance wireless traffic, find rogue wireless devices, and implement WLAN corporate policies.

"At first, our WLAN was created solely to support the devices used by

employees managing inventory," said Wilson. "Over the years it has grown to support our corporate users as well. With Observer's many WLAN features, I can monitor utilization, watch for rogue access points, run usage reports, and perform baselining activities—improving the

performance of our wireless network." Select Comfort first started using

Observer Suite in 2002, when Wilson was looking for an alternative to

Observer's Wireless Site Survey mode offers scanning of multiple 802.11a/b/g channels displaying numerous wireless statistics, including

Observer ensured our data wasn't susceptible to hackers—I can't tell you how much that is worth.

Christian Wilson, Select Comfort

Network General's Sniffer® analyzer. "I had used Sniffer for three years and started looking for a product that was reasonably priced with solid functionality," said Wilson. "Many features you would pay extra for with Sniffer are included with Observer. For example, wireless support is included with Observer whereas with Sniffer it was an additional cost. When you throw in the price difference, Observer wins hands down."

frame types, management frames, speeds, signal strength, signal quality, and channels in use. A convenient channel map provides a quick view of current network status. As Select Comfort's WLAN expanded, security became a concern. Fortunately, Observer offered Wilson a way to

safeguard the network.

"With Observer, it's easy to find rogue access points," said Wilson.

"I simply load Observer onto my laptop and walk around the building

to find which access points are transmitting. I only had six access points deployed, but Observer saw a lot more. Employees were purchasing units on their own and installing them below their desks. This was incredibly dangerous from a security point of view. Thanks to Observer, I created a new corporate security policy to help protect our network that I could easily enforce." Observer's ability to secure Select

Comfort's network traffic is the single most important benefit to Wilson.

"The knowledge and insight provided by Observer is priceless," said Wilson. "How can I quantify how much money and time we've potentially saved by locating rogue access points? Observer ensured our data wasn't susceptible to hackers—I can't tell you how much that is worth."

Observer is the only fully distributed network analyzer built to monitor the entire network (LAN, 802.11 a/b/g, Gigabit, WAN). Download a free Observer demonstration today. Visit www.networkinstruments.com/analyze to learn more.

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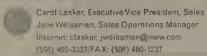


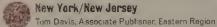
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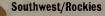
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BACKSPIN Mark Gibbs

Content management vs. DRM

ver the last few years we've seen contentmanagement systems (CMS) that focused pretty much exclusively, on Web

content evolve to meet, sometimes embrace and occasionally supplant traditional document management software.

l'oday, content management has become big business and is starting to become a true enterprise service. What does an enterprise CMS look like? Apart from all the usual features (workflow, versioning, media libraries and so on), it includes comprehensive user authentication and rights enforcement.

You might be saying, "Surely, what you are proposing, nay, extolling, sounds like digital rights management, which I clearly recollect you dissed only a few weeks ago."

Indeed, young Jedi, I was somewhat disparaging and did refer to DRM as digital rights restriction.

But the difference lies in the intention. DRM as desired by the Recording Industry Association of America and the Motion Pictures Association of America, assumes that you can control how users work with content. This is despite the screamingly obvious fact that without special hardware to make DRM solutions truly robust, any kid with half a clue can make sure the best-laid plans of mice and marketers "gang aft agley" (Scottish for "go really wrong").

These could be described as the worst-laid plans, or plans that even mice would not lay.

DRM as applied in the enterprise is a very different beast. It is primarily another mechanism for control that enables and ensures compliance with laws, such as the Sarbanes-Oxley Act, by creating an audit trail of use and attempted use.

I had a chat with the very pleasant folks at SealedMedia about the company's SealedMedia Express product, which makes sure content is distributed only to those who are authorized as recipients and puts constraints on its use.

And, no, a user can't use screen grabbing to acquire the data. The most a miscreant could do would be to photograph the screen with a camera. You can't stop anyone who is hellbent on violating the confidentiality of your documents. The true value of DRM is to enable accountability and auditability; that matters more than any other functions that DRM can provide.

What got me thinking about this was a recent story in *Network World* (www.nwdocfinder.com/3038) about a Government Accountability Office report last year that cited 51 weaknesses at the Securities and Exchange Commission (SEC). Since then, the SEC has corrected or mitigated only eight of them, and 15 new vulnerabilities have been discovered.

The biggest failures were in, you guessed it, a lack of ade-

quate controls over passwords, a failure to implement auditing and monitoring mechanisms "to detect and track security incidents," and a lack of user-access controls.

What amazes me is that products are out there and tested in enterprise-scale organizations. There is simply no excuse for not having addressed the problem.

The truly surprising thing is that in the post 9/11 world, with such a huge amount of lip service paid to national security, we have the ludicrous spectacle of a key government financial institution with a critical economic role having document security that wouldn't be tolerated in even the smallest commercial financial operation.

Why is no one being held accountable? Why in the ranks of shrill posturing politicians is there no one willing to go to bat over this? (Then again, even though Sony BMG compromised thousands of government networks with its DRM systems, no heads rolled.)

These organizations and the public don't seem to care enough to do anything. That is until some kind of IT Pearl Harbor happens to some public institution.

Of course, such an event may have already occurred. If they don't care enough to fix the problem, would they care enough to 'fess up when their worst-laid plans have gang aft agley?

Cries of outrage to Gibbsblog or sound off to backspin@gibbs.com.

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NETBUZZ News, insights and oddities

More about those 'desktop TVs'

Paul McNamara

Last week we opened a discussion about the ongoing proliferation of TV-like viewing opportunities — college basketball games, sitcoms, "Desperate Housewives," "Lost," the list goes on — being dangled in front of every

office worker with a PC and a broadband connection. I asked the recipients of my email list —The Buzzblog Brigade — how they felt about this trend . . . and predictably most everyone who weighed in is none too pleased (www.nwdocfinder.com/3152).

Since then, I've heard from a couple of other Brigade members whose viewpoints — one philosophical, one technical — deserve airing.

Network consultant Jim Albright, while not exactly dancing on his desktop over the PC/TV evolution, sees less cause for alarm than do many of his fellow IT professionals. Here's what Albright has to say: "I've always felt that Internet access-blocking techniques should be utilized for protection only," he writes. "Obviously it's critical to prevent viruses, spyware and spam, from finding their way onto your network.

"In terms of productivity and time wasters, though, I think that those who want to waste time will find a way to do it. Before Internet access there were personal phone calls, hanging out at the water cooler and excessive smoke breaks. I've always felt

'We're all adults here' and that if you hire the right people you won't have to worry about these issues. As long as an individual's responsibilities are being met, I see no harm in a quick personal interruption to the day, as long as it does not become abusive.

"Obviously, watching an entire episode of 'Lost' is an abuse, but these abuses will show themselves through lost productivity and should be addressed on an individual basis. Blocking Internet access globally is a punishing-the-class approach and I don't think that employees should be treated like they are in elementary school."

In theory — and in general — I agree with Albright. However, we don't live in theory or in general. I hold no responsibility for managing a network, nor do I have to concern myself, professionally speaking, with

legal matters or regulatory issues that might arise from unfettered Internet use.
In other words, any fallout from all these new viewing options ain't my problem. So

it's entirely possible that the world Albright and I would prefer to work in simply doesn't have much of a future — and the two of us are among those holdouts who are going to have to adjust — eventually.

The second Brigade member heard from is Joel Trammell, co-founder and CEO of NetQoS, a provider of software that monitors application performance across WANs. Based on our e-mail swaps over the years, I'd guess that Trammell is more of a CNN/C-SPAN guy than sitcom watcher, but he's definitely seeing in this workplace TV trend a real risk for important business apps.

"The problem that is probably least well understood is how UDP-based traffic such as VoIP and real-time video can starve out TCP-based business applications," he writes.

"SinceTCP responds to packet loss by throttling back, its performance can be dramatically affected by the introduction of real-time protocols. People are beginning to see this happen as the amount of VoIP traffic grows dramatically. In most deployments VoIP is prioritized ahead of all other traffic and will perform reasonably well on a well-

provisioned enterprise network. However, TCP-based business applications will experience tremendous variation in response times across a network. Users find wide variations in performance (one time it takes a second to load a page, the next time 10 seconds), particularly frustrating because they don't know what to expect.

"Enterprise network managers need to instrument their infrastructures so that they can quantify these performance changes and understand the impact of new applications and traffic types as they appear." And it appears as if they will be appearing for the foreseeable future.

Want to join The Buzzblog Brigade? All you have to do is ask.The address is buzz@nww.com.

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